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THE UNIVERSITY OF ALBERTA

ALCOHOL, TOBACCO, AND CANNABIS USE IN A SAMPLE OF ALBERTA NATIVE ADOLESCENTS

BY

© KAREN L. SUTHERLAND

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
AND RESEARCH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF ARTS

DEPARTMENT OF SOCIOLOGY

EDMONTON, ALBERTA

SPRING 1987

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled ALCOHOL, TOBACCO, AND CANNABIS USE IN A SAMPLE OF ALBERTA NATIVE ADOLESCENTS submitted by KAREN SUTHERLAND in partial fulfillment of the requirements for the degree of MASTER OF ARTS in SOCIOLOGY.

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ABSTRACT

This study analyzes the problem of drug use from a questionnaire regarding health knowledge, attitudes and behaviors which was developed and administered to a non-random sample of Alberta Native students by Dr. John Gartrell of the department of Sociology at the University of Alberta. In doing so, it first explored the extent of alcohol, tobacco, and cannabis use by measuring levels of reported drug use by adolescents within the sample. This was accomplished by considering the use of each drug independently, as well as by looking at the tendency to use multiple drugs. The level of drug use was also examined by comparing results of this Native survey to results of two Non-Native Canadian national adolescent surveys (King et al., 1984, 1985). Following this, various characteristics of the sample were investigated to determine if they may protect against or potentiate drug use.

Results reveal that there may be different patterns of drug use between Native and Non-Native adolescents. The Native sample (though not representative of Native adolescents) was found to drink alcohol in larger quantities per occasion, and to use cannabis and tobacco more than their Non-Native counterparts. Interestingly, the Native group was not found to drink alcohol any more frequently than the Non-Natives. The tendency toward multiple drug use also found support by this study's findings.

Certain demographic characteristics, along with measures of drug knowledge, home stability, psychological well-being, and the type of school attended were chosen as independent variables. Overall, the best predictors of drug use were found to be age, and low psychological well-being (as measured by a Suicidal index). Most of the other variables correlated only weakly (if at all) with the measures of drug use. These correlations were not always in the direction predicted by the hypotheses. Discussion of results revealed a wide variety of possible explanations for both expected and unexpected findings. Anomie and subculture theory were considered as contributing to many of these explanations.

Generally, this study has provided valuable information regarding the drug use of one of Alberta's adolescent groups. The possibility of differences in drug use between various groups of adolescents should be considered when planning drug prevention programs. This is important since programs should be designed so that they are meaningful to their target populations. Results of this study are best seen in the descriptive sense, and are especially interesting owing to a lack of Canadian data specific to this subject area.

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CHAPTER I

INTRODUCTION

The Research Problem

The problem that will be examined by this study is that of Native adolescent drug use. More specifically it will look at alcohol, cannabis, and tobacco use by a sample of Alberta Native adolescents.[1] There are two main reasons for choosing this area for study. The first reason follows from the recognition of the health risks related to drug use behavior; and the second follows from the recognition of there being few studies available regarding this subject area.

The use of alcohol, tobacco, and cannabis are associated with a variety of negative consequences. Generally, these negative consequences are seen as outnumbering positive effects, and have been shown to affect the individual (physiologically, psychologically, and socially), as well as society as a whole. Drug use by adolescents is not limited to any one ethnic group, but it is a particular concern for Native adolescents. As well, the young age at which many of these adolescents begin using drugs increases their risk for developing the possible negative effects. Therefore, the study of adolescent drug use is important for understanding the health of young people.

Unfortunately, there are few studies available regarding drug use and the Native adolescent. This deficit is especially apparent when searching for relevant Canadian studies. Data that is available includes official records and statistics; or case studies and observational data collected by those in helping professions. Unfortunately, much of this is sketchy and has been unsystematically compiled . This lack of information leaves stereotypes (i.e., the drunken Indian on skid row) intact and reliance on such stereotypes is misleading.

---

[1] Alcohol and tobacco are not always referred to as "drugs". However, they are included in this category owing to the properties of ethanol and nicotine (Thio, 1983).

The Social Program Evaluation Group of Queen's University in Kingston, Ontario included items regarding alcohol, tobacco, and cannabis use in two nationwide health surveys of the health knowledge, attitudes, and behaviors of Canadian youth (King et al., 1984, 1985). Native youth were not excluded from these samples although the numbers were likely small. As well, the questionnaires used in these surveys did not allow for the identification of these students for independent analysis. However, it was still hoped that these surveys would:

> . . .provide a solid base of information from which initiatives could be taken by the Health Protection Directorate of Health and Welfare Canada and by the health educators in the provinces and territories to decrease self-imposed health risks and promote healthy lifestyles among young Canadians. (King et al., 1985b, p. 1)

Results of these two surveys provide an interesting description of the health knowledge, attitudes, and behaviors of Canadian youth.[2] However, these surveys do not provide information specific to various groups within the adolescent population. For example, consideration of the uniqueness of the various ethnic groups included in Canada's population is important, especially when planning intervention programs. A program may not yield the success hoped for if its values and attitudes are not appropriate for the ethnic or racial groups included in the target population (Winfree & Griffiths, 1983, p. 66). As noted by Winfree and Griffiths (1983):

---

[2] Results from these two Canadian surveys (King et al., 1984, 1985) that have particular relevance to this study will be referred to in subsequent chapters where appropriate.

> . . . the race, ethnicity, or cultural background of a student plays a key role in determining drug-related values, attitudes and behavior . . . Consequently, primary prevention programs that assume high levels of homogeneity in their target populations . . . are likely to meet with limited success. (pp. 65-66)

Recognition of this helps to understand the need for more detailed information regarding the health knowledge, attitudes, and behaviors of specific ethnic groups such as Native Canadians. Therefore, further study is a necessary step in gathering the relevant data needed for planning programs toward the goal of decreasing "self-imposed health risks" and promoting "healthy lifestyles among young Canadians".

The General Research Questions

There are many questions which could be asked when considering the problem of Native adolescent drug use. Three of these have been selected and should help to guide hypotheses development. One of the first questions to be asked is "how high are their levels of drug use?" Stereotypical images suggest that Native "level of use" would be high. However, as previously noted, stereotypes can be misleading and consideration of this question by data analysis will hopefully give a more accurate assessment of actual levels of drug use.

A second question which also considers the issue of "levels of use" looks at the number and types of drugs used. The association of using one type of drug with the use of other drugs would suggest a higher level of use than if only one drug was involved. Both of these questions could be approached by looking at survey results within a sample of Native adolescents. Another way of assessing the level of use would be to compare Native survey results to survey results of a Non-Native sample (i.e., such as supplied by the research done by King et al., 1984, 1985).

Beyond the issue of levels of drug use is another question whose answer considers differences within the Native sample itself. This question addresses possible reasons for why some Native adolescents use drugs while others do not. Many of the characteristics included by the Native survey questionnaire could be investigated here. These include demographic differences (i.e., age); home environment differences (i.e., marital status of parents); and social psychological differences (i.e., levels of self-esteem and mental health). Answers to these questions may yield possible clues to factors which may protect against or potentiate drug use by Native adolescents.

Summary

The following paper will attempt to answer these questions in the hopes of increasing awareness of Native adolescent drug use in Alberta. This is important especially when recognizing the lack of Canadian data regarding this important issue.

To highlight the effects of alcohol, tobacco, and cannabis the literature review will provide an overview of each of these as separate entities, with specific reference to the Native people where possible. The use of drugs in combination will also be discussed with emphasis on Native youth. A closer examination of three American studies regarding drug use and Native adolescents will highlight some of the limitations of existing studies. The most current drug use findings specific to Canadian adolescents (in general) will also be presented. These come from the Canada Health Surveys (King et al., 1984, 1985). There are two reasons for selecting these Canadian national surveys for inclusion in the literature review. One reason is that many of the questionnaire items used in this Native survey are the same as those used in the national surveys; and the second reason is that results of these surveys will provide comparisons for the Native findings.

Many of the studies reviewed take a descriptive, or epidemiological approach to the issue of drug use, rather than a theoretical approach. Owing to this, the literature review will attempt to highlight the large number of possible theoretical approaches with special emphasis on two sociological theories. These will come from within the field of deviance. The consideration of theory will assist in the development of hypotheses and will be applied where possible in offering explanations for results.[3]

The literature review will give rise to two sets of hypotheses. These will address the research questions mentioned previously. For example, one set of these hypotheses will consider the levels of drug use by Native adolescents. The second set of hypotheses will consider characteristics within the Native sample which may affect drug use. Following presentation of the study's hypotheses, the method of investigation will be described.

The survey data that will be analyzed comes from a non-random sample of Alberta Native students.[4] This survey was done in response to the Canada Health Surveys and included items regarding the health knowledge, behavior, and attitudes of a wide variety of health related topics. The similarity between questionnaires in this Native survey and the Canada Health Surveys will help facilitate comparisons between the two samples. This study will be particularly interested in results of the knowledge and behavior items regarding alcohol, tobacco, and cannabis use.

---

[3] It should be noted that the data used for analysis was not necessarily collected with a specific theoretical approach in mind. Therefore, direct testing of theory is not easily accomplished.

[4] The Native survey was done in 1985 by Dr. John Gartrell, Department of Sociology, University of Alberta, Edmonton.

Following statistical analysis, the results of this Native survey will be presented in two sections. The first of these will present findings and discussion of the "levels of use" hypotheses. The second section will present findings and discussion related to sample characteristics which may influence drug use. The discussion of results will explore alternative explanations for both expected and unexpected findings.

In conclusion, results will be reviewed according to their ability to answer the research questions earlier identified. Although results from this study will not be generalizable to ~~the~~ Native adolescent population, it is hoped that results will provide some insight into the nature of Native adolescent drug use. It is also hoped that this study will give rise to further research questions and encourage the development of a Canadian data base specific to this important area.

CHAPTER II

ALCOHOL, TOBACCO, AND CANNABIS USE

Interestingly, most research has considered the use of alcohol, tobacco, and cannabis separately, although there does seem to be a more recent trend toward considering the use of "multiple drugs". Few of these studies consider the Native adolescent, and most that do, include only American Native adolescents. While it is reasonable to assume that certain aspects of these American studies may be applicable to the Canadian situation, possible differences should not be overlooked. The following section first clarifies the use/abuse issue for the purpose of this study. Effects of alcohol, tobacco, and cannabis, when used separately as well as in combination, will then be discussed with reference to Native people where possible.

Use Versus Abuse

This study does not attempt to define an "abuser" of either alcohol, tobacco, or cannabis.[5] Rather, the respondent who indicates use of any of these will simply be considered a "user".[6] A possible drawback to this approach is that it may seem to oversimplify the area of drug use by ignoring different patterns of use. However, measures used in analysis should help to capture some of the variation, at least as to the degree of involvement. An advantage to avoiding the terms "abuse" and "abuser" is that it will help avoid some of the negative connotations which are associated with these words. This is particularly important when realizing that many adolescents partake in some form of drug use, and that many of these same individuals will go on to lead productive lives, free of the need to use drugs.

---

[5] The literature has handled the use/abuse issue in a variety of ways. Alcohol, tobacco, and cannabis have each been considered as being used and abused; and those using these, have been seen both as users and abusers. To complicate this further various "cutting points" have been suggested both for identifying users and abusers. Owing to this, reviewing the literature becomes complex. Therefore, recognizing that this is a point of difference for many studies is important. For further discussion of the use/abuse distinction see: B. Haddon, "Social research/substance abuse", International Journal of the Addictions, 1983, 18(1), 23-25; A. Thio, Deviant behavior (2nd ed.), Boston: Houghton Mifflin Company, 1983, pp. 331-33.

[6] Occasionally, throughout the literature review, the terms "abuse" and "abuser" will be used. This is done in order to be consistent with the author under review.

Alcohol

The largest component of "substance abuse" in Canada is alcohol (Henderson, 1982). Abuse of alcohol, although not restricted to any one ethnic group, is generally recognized as a problem for North American Native Indians (Weibel-Orlando, 1984). In Canada, both the Inuit and Indian people seem particularly vulnerable to the problems of alcohol use (Negrete, 1982). This is especially apparent when reviewing mortality statistics. They show that Indian deaths, such as those due to accidents, violence and suicide, are linked to alcohol use (Cockerham, 1977; Henderson, 1982; Weibel-Orlando, 1984). These causes of death are also reflected by Alberta statistics. For example, Alberta's Indians die more often from accidents (i.e., motor vehicle and fire), violent causes (i.e., homicide), and suicide than do Albertans as a whole. In many of these alcohol was shown to be a factor (Jarvis & Boldt, 1982).

George Jarvis and Menno Boldt (1982) suggest that even in cases where alcohol was not a proven factor, it may still have been involved in Native deaths. Owing to this, alcohol related deaths among Native Indians may be underestimated. For example, an accident involving an impaired driver may result in the death of non-drinking individuals. The Jarvis and Boldt (1982) study suggests that even death by fire may be alcohol related if the drinking led to carelessness, or if the drinkers were unable to waken and leave the scene.

Health and Welfare Canada (1984) also recognizes that alcohol may be related to many Native deaths. In fact, they suggest that many of seventy-eight deaths of Alberta Registered Indians in 1982, that are recorded as due to accidents, poisoning, and violence may be alcohol related (Health and Welfare Canada, 1984, p. 7). (Table 1)

Romanowski and Schaefer (1981) note that since the cessation of prohibition on reserves, and with the movement of many Natives to urban areas, alcohol related health problems have increased. Both Native men and women are at risk for the various health problems attributed to alcohol use, although there seem to be some gender related differences. In reporting of the experience of the Charles Camsell Hospital in Edmonton, Alberta, Romanowski and Schaefer (1981) find that Native men have higher admission rates for traumatic injuries, delerium tremens, and alcoholic neuritis; while Native women show higher incidence of liver cirrhosis. From their observations, it appears that Indian women are particularly vulnerable to cirrhosis. A possible reason for this is that many of the affected women have begun drinking at an early age and continued to do so throughout their reproductive life and during pregnancies. It seems that drinking during pregnancy, along with the malnutrition which often accompanies heavy drinking, places Native women at greater risk for development of cirrhosis (Romanowski & Schaefer, 1981).

Romanowski and Schaefer (1981) also compare reasons for Native and Non-Native admissions and find Native admissions higher for alcoholic cirrhosis. This should be viewed cautiously as the admission practice of the Charles Camsell Hospital (although it has changed considerably in recent years), has favoured large numbers of Native patients and it is unlikely that the few Non-Native patients were representative of Alberta's Non-Native hospital population. However, statistics do support the contention that Alberta Native

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Table 1 contained the frequency of deaths, according to diagnosis, of Alberta Registered Indians where alcohol was found to be a contributing factor. This was for the year 1982.

SOURCE: Health and Welfare Canada, Alberta region annual review 1982 and vital statistics. Prepared by A.R.M.S.B., March 1984, p. 7, and Appendix I p. 41.

deaths related to alcoholism and cirrhosis occur at a higher rate than these deaths in the rest of the population (Jarvis & Boldt l982).

As previously mentioned, Romanowski and Schaefer (l98l) attribute some of the Native alcohol problem to urbanization. However, Weibel-Orlando (l984) notes that even reservation life does not protect Indian youth from experimenting with various substances, including alcohol. In fact, a study of American Native adolescents found greater alcohol consumption among those from rural areas than among those from urban areas (Weibel-Orlando, l984). While it is possible that some Indians may migrate to cities in search of a "haven" for habitual drinking, a larger number may migrate to cities in hopes of raising their standard of living (Weibel-Orlando,1984, p. 327). A more global explanation of higher rural alcohol consumption is that these rural areas generally suffer "extremely high unemployment and the erosion of traditional avenues for validation of self" (Weibel-Orlando, l984, p. 327). Romanowski and Schaefer (l98l) offer no support for their attribution of alcohol problems to urban influence, and the stereotype it conjectures of the "drunken Indian on skid row", may be misleading in terms of understanding the Indian alcohol problem.

Alcohol clearly has an impact on the health of the individual. Many of the young users of alcohol have not consumed the substance long enough to exhibit permanent physical disorders. However, they are still at risk for some of the other more immediate "negative" consequences of alcohol use. For example, the underage adolescent who drinks alcohol is at greater risk of confrontation with law enforcement agencies. Young people are also considered to be greater risks for traffic acccidents and use of alcohol serves to increase this risk (Kandel, l982, p. 342). Early onset of alcohol use also places the individual at greater risk for future problems such as continued use of alcohol, greater chance of involvement with other drugs, and an increased chance of involvement in deviant activities (Kandel, 1982, p. 342). Of course early onset of alcohol use, especially if heavy use should ensue, also places the individual at greater risk for development of permanent physiological health problems. Despite all the "negatives" some positive outcomes of alcohol use have also been noted. For example, in adolescents who report low self-esteem and a depressive mood, the use of alcohol is followed by an improvement in self-esteem and a decrease in depressive mood. (Kandel, 1984, p. 341). However, alcohol has also been linked to suicide and in a large number of young Indian suicides, alcohol was a factor. Therefore, it may be possible that over the short term alcohol may help combat depression, but the long term solution may be suicide (Weibel-Orlando, 1984, p. 315).

Tobacco

In Canada, cigarette smoking has gradually been decreasing, but of Canadians over the age of fourteen, approximately forty percent continue to smoke (Collishaw & Rogers, 1984). An article comparing survey estimates of smoking prevalence among Canadian adolescents reveals that, regardless of the type of survey conducted, females smoke as much or more than males. A trend indicating that smoking increases with age is also noted (Table 2). Results in Table 2 that were supplied by the Canadian Labour Force Surveys are consistently lower than results supplied by other surveys during the same year. This finding has been attributed to the use of proxy reporting employed by the Canada Labour Force Surveys.[7] With respect to smoking behavior, proxy reporting tends to underestimate (Millar, 1985).

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[7] In these surveys the respondent for whom survey questions were intended was sought out. However, there were times when the intended respondent was unavailable. In these instances a proxy (i.e., another household member) was used to provide information about the respondent in question.

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Table 2 listed a number of surveys administered between 1978 and 1984 to Canadian adolescents. The prevalence of regular cigarette smoking, as found by each of these surveys, was given according to age and sex.

SOURCE: Millar, W.J. Smoking prevalence among Canadian adolescents a comparison of survey estimates. Canadian Journal of Public Health, 1985, 76(1), p. 34.

Despite the fact that tobacco "causes more death and illness than any other single product", seventy-nine percent of Canadians surveyed, in 1981, considered smoking behavior to be socially acceptable (Collishaw & Rogers, 1984, p. 150). Even knowledge of the dangers of smoking does not necessarily inhibit smoking behavior (Evans et al., 1979). However, impact of knowledge on behavior seems to vary with age. Evans et al. suggest that:

> Knowledge of the dangers of smoking often motivates a preadolescent to become a crusader against smoking, while the social pressures occuring during adolescence may outweigh the effects of this concrete knowledge. (p. 76)

In sum, they propose that "'social adaptation' may override 'intellectual adaptation' of knowledge" (Evans et al., 1979, p. 76). Clearly smoking continues to be a major health issue. However, of the large volume of literature regarding drug/substance use, few include tobacco as one of their variables of interest.

Cannabis

Next to alcohol (excluding tobacco), cannabis (marijuana) is the next most frequently tried substance, and is the most prevalent of the illegal drugs (Kandel, 1982, p. 330). Little is known about Indians and drugs other than alcohol (Cockerham, 1977; Weibel-Orlando, 1984, p. 316). However, two large American surveys found that Indian adolescents have higher marijuana usage rates than other adolescents (Elinson et al., 1973; Johnston et al., 1979). A few studies look at marijuana use independently, and some look at alcohol independently; however, few consider the concurrent use of more than on drug.[8]

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[8] Pandina et al. (1984) recommends that current and future research should not restrict itself to studying any one drug in isolation, as they recognize that more than one drug is often involved.

Like alcohol, marijuana has an impact on the physiological, psychological, and social health of individuals and on society in general (Pandina et al., 1984). Physiologically, smoking marijuana has a harmful effect on lungs as marijuana contains many of the same chemicals and tars as tobacco. In fact, the manner in which it is smoked (inhaled deeply into the lungs) may further aggravate the harmful physiological effects of marijuana smoke (Kandel, 1982, pp. 342-43). Denise Kandel (1982) writes that a young persons' "psychosocial" maturation may also be adversely affected by marijuana use. For example, daily use, with the possibility of being "high" at school negatively affects school performance and the individual's "ultimate life chances" (p. 340). In fact, marijuana users miss more school because of illness and "skipping", and have a lower grade point average than non-users (Bachman, 1981). (Table 3) Driving performance is also affected by marijuana use. Those under the influence of marijuana exhibit impaired judgement, have more "near misses" and more accidents (Kandel, 1982, p. 342). Obviously this poses a threat to society, as well as to the individual.

Multiple Drug Use

Users of one drug are more likely to use other drugs (Cockerham, 1977; Miller, 1980; Pandina et al; 1984). Cockerham (1977) investigated racial differences in the use of multiple drugs and found that, compared to Non-Natives, Natives were more likely to use alcohol, marijuana, and other drugs. As well, Natives more often approved of other drugs besides alcohol (Cockerham, 1977). Johnston et al. (1979) lend support to this by finding that Native grade seven and eight students have higher marijuana, alcohol, and inhalant usage rates than Non-Native students.

As previously mentioned, few studies include tobacco in their analysis however, two surveys (not specific to Natives) have considered tobacco use.

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Table 3 described the 1981 school performance of American high school students according to drug involvement.

SOURCE: Bachman, J.G., O'Malley, P.M., and Johnston, L.D. Monitoring the future, 1980: Questionnaire responses from the nation's high school seniors. Ann Arbor, Michigan: Institute for Social Research, University of Michigan, 1981. As cited by Kandel, D.B. Epidemiological and psychosocial perspectives on adolescent drug use. Journal of the American Academy of Child Psychiatry, 1982, 21(4), p. 336.

Fishburne et al. (1980) found that among youth aged twelve to seventeen, those who smoke tobacco are more than three times as likely as non-smokers to have experimented with marijuana. Kandel and Faust (1975) found that marijuana users were more likely to use alcohol and tobacco, and they found this relationship increased in strength with the extent of marijuana involvement.

Kandel (1982) describes four stages in the development of legal and illegal drug use. These stages are: "(1) beer or wine, (2) cigarettes or hard liquor, (3) marijuana, and (4) other illicit drugs" (Kandel, 1982, p. 333). She notes that occupation of a stage is "necessary" before progressing to the next stage, but that this is not "sufficient". As a result, only some of the youth in any stage will progress. Kandel (1982) also suggests that direct progression from non-use to illegal drug use almost never occurs (pp. 334-35).

The age of onset is also important, since the earlier the use of any drug, the greater the chance of involvement with others. Therefore, the earlier the involvement with legal drugs such as alcohol and tobacco, the greater the chance of using illegal drugs such as marijuana (Kandel, 1982, p. 335). After reviewing the literature, Kandel (1982) notes that:

> . . . most findings support the conclusion that earlier initiation into drugs, such as alcohol and marijuana, is associated with ncreased liability: greater subsequent abuse of that drug, greater probability of involvement in more serious drugs, lower performance in a variety of social roles, and greater involvement in deviant activities, such as selling drugs or criminality. (p.342)

Multiple drug use generally increases risks to health. For example, since many marijuana smokers also smoke tobacco, the amount of harmful substances inhaled into the respiratory tract are increased (Kandel 1982, pp.342-43). Those who use marijuana often drink alcohol as well, and the two together may have a synergistic effect and further impair driving (Kandel, 1982, p.342). Native adolescents who begin use of alcohol and drugs early in life, and who seem to use these substances in larger amounts than Non-Natives, have increased the risks to their immediate and future health. This may contribute to the gloomy health picture of the Native people in Canada.

Studies of American Native Adolescents and Drug Use[9]

Multiple Drug Use Within a Sample of Native Adolescents

Native adolescent use of alcohol, marijuana, hashish, inhalants, hallucinogens, and other drugs known as "uppers" and "downers" was studied by Joan Weibel-Orlando (1984). Her results cannot be generalized as she selected a sample from two American Native survey samples which, themselves, are not generalizable. Weibel-Orlando's sample included only adults aged eighteen to seventy-eight; all were light, moderate, or heavy drinkers (non-drinkers were excluded), who had abstained for six months prior to the interview; and all admitted to drinking before the age of twenty. Weibel-Orlando chose to capture the effect of growing drug use in the 1960's by dividing her sample into two groups. In doing this she divided the sample between age thirty and thirty-one. However, other historical events, such as prohibition, may have affected other age groups in her sample and a different age structure may have yielded other interesting findings.

The study's retrospective design required participants to recall events during their adolescence. Accurate recall may have been difficult, especially for the older repondents. Recollection may have been particularly difficult owing to the detail that was required. For example, rather than recalling drinking behavior generally, respondents were expected to recall the individual use of wine, beer, liquor, and "homebrew".

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[9] These American studies are three of the few available which address the issue of multiple drug use, or at least use of other drugs besides alcohol, by Native adolescents. As the following discussion will illustrate, there are certain methodological limitations within each of them. However, owing to the lack of other related studies, they are three of the best available. The value in recognizing the limitations of these studies is that this should help to recognize the limitations of other related studies and help in planning different research strategies.

The method of data collection was by interview and details regarding this process were not given. Considering that Weibel-Orlando's (l984) sample was drawn from two surveys, it would be interesting to know if the questions and the manner in which the interviews were conducted were the same. A problem with interviews can arise in surveys such as these because of cultural, language, and age differences. McBride and Page (l980) have found language barriers when interviewing Native people and have also found it difficult to find interviewers fluent in Indian languages as well as English. Owing to the number of different tribes included in the 1978/79 surveys, language was likely an issue. Language barriers seem possible especially when considering that many of the respondents were older and less likely to have been educated in English. McBride and Page (l980) also describe the reluctance of many Native people to disclose personal information, and therefore, missing data becomes a problem. They state:

> . . . most Indian traditions do not emphasize the value of self-disclosure but rather emphasize indirection. (p.482)

There is no mention in Weibel-Orlando's (l984) article of how language differences, if any, were dealt with; and whether or not cultural differences could have affected results.

Weibel-Orlando (l984) constructed a nine-point consumption index based on self-reports of substance use by respondents themselves and reports of their perceptions of peer use. Her results revealed that heavy drinking adults reported higher consumption levels as adolescents; rural respondents report higher levels than urban respondents; and males drink, and use marijuana, more than females. She also found a correlation between drinking in the "household of origin" and usage patterns as adults. A strong correlation between perceived peer use and respondent use was also found. These findings were supported by her literature review and although they cannot be generalized, they offer further insight into a subject area not well researched.

Multiple Drug Use and Native and Non-Native Adolescents

A second, and earlier study which is often referred to, was done by W.C. Cockerman (l977). Cockerham was interested in possible differences in patterns of multiple drug use between Native and Non-Native adolescents. He was also interested in testing a hypothesis proposed by Whitehead et al. (l972) which states "users of any one drug will show increased probability to use another drug when they are compared to those not using that drug" (Cockerham, l977, p.273). Cockerham's approach to testing this hypothesis was to examine whether or not the users of alcohol were any more likely to use other drugs (i.e., marijuana, hard drugs) (Cockerham, l980).

Cockerham's sample consisted of junior and senior highschool students on, or near, the Wind River Reservation in Wyoming. All of the students present on a given day were chosen from the smaller schools, and in the larger schools, a random sample of those present on a given day were selected. The result was a sample of 667 Non-Native students and 280 Native students who ranged in age from twelve to eighteen. There were almost equal numbers of males and females in the total sample, but the gender breakdown for Native and Non-Native groups was not given. Both groups came from a rural area and besides differences in racial background they also differed in terms of average family income (i.e., $l0,000.00 for Non-Native, $4,500.00 for Native) (Cockerham, l977).

School surveys are often criticized because they exclude non-attending individuals most likely to be involved in activities such as alcohol and drug use. These individuals are more likely to be absent or to have "dropped out" of school (Kandel, 1982, pp.329-30; McBride & Page, 1980). If absenteeism was a problem in the schools chosen by Cockerham, his results could be underestimated.

Cockerham (1977) found that males and older respondents were generally more likely to be involved with alcohol and drug use. Comparing Natives and Non-Natives, he found that both adolescent groups like to drink and enjoy doing so. He notes that in Wyoming, adolescents generally show favorable attitudes toward alcohol use, so his findings were not surprizing. Even among those he classified as "non-drinkers", almost two-thirds had at least tried alcohol. Clearly, a majority of adolescents under the legal age for consuming alcoholic beverages, had experienced alcohol to some degree.

Of those Cockerham (1977) classified as "drinkers", the Native drinkers were found to get "drunk" more often. These Native drinkers were also more favourable towards using other drugs than their Non-Native counterparts. The "drinkers" of both groups were more likely than "non-drinkers" to have tried marijuana; but the proportion of Natives using marijuana was higher. Looking the other direction, marijuana users were almost all drinkers who were most likely to get drunk. While the numbers of those who admitted to using other drugs were small, those who did (whether Native or Non-Native) were most likely to be drinkers also. These findings supported the Whitehead et al. (1972) hypothesis, and also showed some differences in usage patterns between the races. While Cockerham (1977) makes no attempt at explaining racial differences, his analysis is useful in the descriptive sense.

Marijuana Use and Native and Non-Native Adolescents

A third study, by Winfree and Griffiths (l983) looked at marijuana use, and this study also compared Non-Native and Native adolescents. They conducted a school survey, in a rural district, and included students from grade six throughout high school. Missing data was a problem for this survey as almost one-quarter of the questionnaires were not returned in "usable condition". Possible reasons for difficulties with the questionnaire were not discussed. For example, the instructions could have been too complicated, especially for the younger students; or perhaps the students were disinterested or rebellious.

Information as to how the sample was selected was not given. However, as with any school survey, Winfree and Grittiths (l983) would have also had to face the problem of missing those most likely to be involved with marijuana use. Further details regarding the sample such as the breakdown of gender and grade within the racial categories would have also been of interest, but were not given.

Winfree and Griffiths (l983) examined self-reported marijuana use with respect to risk-taking behavior, perceived peer support, liberal views and grade. "Risk-taking behavior" was assessed through questions specific to marijuana use and therefore, did not necessarily reflect the respondents' general tendency toward taking risks. "Liberal views" were assessed in two ways. The first method compared the respondents' views toward drugs and his/her parents' views. The second method assessed the respondents' views toward the legislation of marijuana. "Perceived peer support" was measured by the respondents estimating how many of their school peers used the drug. Using these independent variables, Winfree and Griffiths (l983) found that Non-Native sutdent involvement with marijuana was most strongly correlated with liberal attitudes toward drug laws and next with perceived peer use of marijuana.

Native use was unrelated to liberal views, instead, grade level was most strongly related followed by peer use. Numbers of users from grades six to eight were similar between the two groups, but at the highschool level Native users outnumered Non-Native users. With respect to risk behavior and marijuana use, an inverse relationship was found, and was stronger for Non-Native students.

According to this study there appear to be differences between Natives and Non-Natives with respect to marijuana involvement (Winfree & Griffiths, 1983). While it apppeared that Non-Native students "adhered to the normative expectations of the anti-establishment drug subculture" (Winfree & Griffiths, 1983, p.65), this was not the case for Native students. The Natives were more influenced by peers which suggested a "supportive group network" (Winfree & Griffiths, 1983, p.65). Weibel-Orlando (1984) also found a strong correlation between substance use and perceived peer use. There are a number of possible explanations for this and it does not necessarily mean that Non-Native adolesents are less influenced by their peers. Instead this result may reflect a more accurate reporting of peer influence by the Native adolescents. However, according to Kandel et al. (1976), results based on an adolescent's perceptions of peer (or parent) behavior "tend to be inflated because an adolescent's own pattern of drug use partially determines the perception of drug use by others..." (p.439). While it may be safe to assume that peers do exert influence over adolescent behavior, high correlations should be regarded somewhat skeptically.

Grade level was also found by Winfree and Griffiths (1983) to be particularly important in predicting Native use of marijuana. They also found little difference between the numbers of Non-Native and Native users in the earlier grades. It is not possible from their report to know whether or not problems with the questionnaire may have affected these results. For example, the understanding of a student in grade twelve is likely quite different than that of a student in grade six. Younger Native students may also have been at a disadvantage if English is their second language. With so many questionnaires having to be discarded it seems reasonable to assume there was some sort of difficulty with them that may have affected results with respect to grade level.

The use of drugs is definitely not only a problem for Native adolescents, as many Non-Native adolescents have also indicated involvement. However, both the Cockerham (l977) and Winfree and Griffiths (l983) studies have found support for the notion that Native use is greater than Non-Native use. Weibel-Orlando's (l984) study suggests that many of these Native adolescents, who indicate higher usage rates will go on to use greater amounts of alcohol and drugs as adults. Naturally, the recognition of possible negative effects of alcohol and drug use, both for the individual and for society as a whole, makes findings such as these a concern. Although, each of these three studies is American, some of their findings may extend to the Canadian situation.

Canadian Adolescents and Drug Use

Although some differences in drug use attitudes and behaviors, between Natives and Non-Natives, have been noted by Cockerham (l977) and by Winfree and Griffiths (l983), it is reasonable to assume that there would be some similarities as well. This is attributable to such things as attendance in "mixed" schools; common curriculums; transportation and mobility of young people on and off reserves; and common mass media messages via television, radio, and magazines. As well, regardless of race, adolescence is an important time of life. This is a time when childhood behavior changes for more mature behavior; and the individual is faced wth choices and decisions important to his/her adult life (Pandina, l984, p. 254). As pointed out by Kandel (l982), use of certain drugs may assist the adolescent in dealing with psychological stress. In fact, Kandel (1982) reports of studies done by H.B. Kaplan, in 1977 and 1980, which indicated that low self-esteem and/or depressive mood predicted the onset of drug use (i.e., alcohol, marijuana, narcotics) by adolescents (pp. 341-42). Factors such as unemployment and marital separation have been linked to depressive mood in the general adult population (Kandel, 1982, p. 342). It may be possible that factors such as these affect adolescents as well, regardless of ethnic origin.

Two recent school health surveys of Canadian youth (grades four, seven, and ten) provide a description of alcohol, tobacco, and cannabis use by young Canadians (King et al., 1984, 1985). These findings will be used to provide Canadian comparisions. It is likely that some Native youth were included in these surveys. However, the numbers would have been very small. As well, ethnicity was not required on the questionnaires, and therefore, Native youth could not be identified (King, 1986).

The first of the Canadian youth health surveys was begun in 1982. It was concerned with assessing the "health knowledge" of a wide range of health related topics, including alcohol, tobacco, and cannabis. Results indicated that Alberta students performed slightly, but consistently, better than Canadian students as a whole. (Table 4) However, on only one item (knowing that first time drinkers get drunk quicker) did the Alberta students do significantly better than national results.

The second health survey covered a similar sample in 1983-84 to assess "health attitudes and behaviors" (King et al., 1985). Results revealed that Alberta students behave similarly to Canadian students as a whole with respect to alcohol, tobacco, and cannabis use. (Table 5) Consistent with the literature, alcohol is the most frequently used drug, followed by tobacco, and then by

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Table 4 gave the percentage of correct responses as given by grade seven students to knowledge questions regarding alcohol, tobacco, and cannabis. This table gave responses for Alberta grade seven students, as well as for Canadian grade seven students as a whole.

SOURCE: King, A.J.C. , Robertson, A., Warren, W.K., Fuller, K.R., & Stroud, T.W.F. Canada health knowledge survey: 9, 12, and 15 year olds 1982-83 Alberta findings. Queen's University, Kingston: Published by the authority of the Minister of National Health and Welfare, Canada, 1984, (pp. A-8, A-10, A-13); and King, A.J.C., Robertson, A., Warren, W.K., Fuller K.R., & Stroud, T.W.F. Summary report: Canada health knowledge survey: 9, 12 and 15 year olds. Queen's University, Kingston: Published by the authority of the Minister of National Health and Welfare, Canada, 1984, (pp. 29, 30, 32).

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Table 5 gave the percent of Alberta and Canadian grade seven students who admit to use of alcohol, tobacco and cannabis. The users were described according to level of involvement.

SOURCE: King, A.J.C., Robertson, A.S., & Warren, W.K. Canada health attitudes & behaviors survey: 9, 12 and 15 year olds 1984-85 - Alberta report. Queen's University, Kingston. Published by the authority of the Minister of National Health and Welfare, Canada, 1985, (pp. 15-16).

cannabis. At the grade seven level, users of these drugs formed a minority of the students. Examination of the drug behavior of grade ten students, indicates that use of each of these three drugs increases with grade/age (King et al., 1985). This finding is also consistent with the literature.

Gender differences in the use of alcohol, tobacco, and cannabis were also reported at the national level by the second Canadian survey (King et al., 1985a). At the grade seven level, more males than females used alcohol (30.4% and 19.7% respectively). By grade ten this difference disappeared, but, males still reported heavier drinking (King et al., 1985a). Grade seven results by gender for tobacco and cannabis use were not given, but grade ten results were mentioned. In view of reported literature none of these are surprizing. For example, at the grade ten level, a higher proportion of females use tobacco; while a higher proportion of grade ten males use cannabis (King et al., 1985a). Alberta findings with respect to gender were not reported, but they are likely to be similar.

At the national level, several relationships were noted that were also consistent with the literature. For example:

1. Grade seven users of alcohol, tobacco, and cannabis were more likely to:
   - have positive attitudes toward these drugs
   - associate with other users
   - be more protective of users
   - use these drugs in the future

2. Alcohol, tobacco, and cannabis users were more likely than non-users to:
   - spend less time doing homework
   - have negative attitudes toward parents and home life
   - have lower self-esteem and poorer mental health
   - be willing to take risks
   - have a negative attitude toward school (King et al., 1985a, p. 57)

Also, although not statistically significant, a relationship was found between drug use and feeling peer pressure to use drugs (King et al., l985a, p. 57).

Other than the age and gender of the respondent, no other demographic data, either specific to the respondent or his/her family was collected by these Canadian studies. This has made it impossible to investigate other possible relationships with drug use such as with ethnicity, financial status, and marital status of parents. Direct comparisons betwen the two surveys (i.e., is knowledge of alcohol effects related to alcohol use) is also not possible owing to the difference in samples. With such a large sample, and recognizing the lack of Canadian data, these surveys could have provided an excellent opportunity to gather more detailed information to allow investigation of various relationships noted in the literature regarding drug use or other aspects of adolescent health knowledge, attitudes, and behaviors. However, these surveys do begin to provide a much needed baseline of Canadian data and raise several possibilities for future study. They will also be useful in providing Canadian comparisons for results of this Native survey.

Summary

The preceding chapter illustrates the negative health consequences of alcohol, tobacco, and cannabis use. It also supports the notion that increased amounts of drugs used, and/or the use of drugs in combination accentuates these negative effects. Most information regarding drug effects on Native people has to do with alcohol only. However, it seems reasonable to assume that the negative effects of tobacco and cannabis noted in Non-Native populations would also apply to the Native people.

Studies that do compare levels of alcohol and cannabis use between Native and Non-Native adolescent samples reveal that the Native samples tend to be heavier users. The tendency toward multiple drug use by Native adolescents is also noted. Therefore, although information specific to levels of tobacco use among Native adolescents is not reported, it is likely that they would also be heavier users of tobacco. This gives rise to the three "levels of use" hypotheses which will be investigated by this study. They are:

1. Native adolescent use of alcohol, tobacco, and/or cannabis will be high.
2. Native adolescents will use alcohol, tobacco, and/or cannabis more than Non-Native adolescents.
3. Those who use any one drug will be more likely to use others.

The preceding chapter also describes characteristics of American Native and Non-Native adolescent drug users. For example, a link between alcohol and low self-esteem and depressive mood was noted. This also raised the possibility of factors related to depression (i.e., a broken home) being related to depression and subsequent drug use in the adolescent population. Correlations between alcohol and cannabis use were also found with age and grade. Here it was found that increased involvement with drugs increased with age/grade. Gender differences included the male tendency toward greater use of alcohol and cannabis. Interestingly, this gender difference did not persist with tobacco use. Connections between peer use and the respondents use were found; and drug use in the repondents household of origin was related to his/her subsequent use of drugs. As well, heavy users as adolescents tended to continue this behavior as adults. Urban and rural differences with respect to drug use found rural residents to be heavier users. Although knowledge of drug effects and its impact on drug use was not reported for Native adolescents the effect of knowledge of dangers of smoking was found not to negatively influence smoking behavior of adolescents. Obviously there are forces stronger than "knowledge" affecting the behavioral decisions of adolescents, and these may also apply to decisions regarding alcohol and cannabis use.

Canadian findings, though not specific to Native adolescents, have found similar relationships between drug use and age/grade, gender, and self-esteem and mental health. Canadian results also indicate that alcohol is the most widely used drug, followed by tobacco and then by cannabis. A number of reasons for similarities between Non-Native and Native youth have been described, and owing to these, certain similarities in patterns of drug use would be expected.

A number of possible study hypotheses which examine characteristics within the adolescent sample follow from the literature. While consideration of *all* the possibilities is not possible, given the data to be analyzed, the following will be investigated:

1. Native adolescent drug use will be inversely related to psychological well-being.
2. Native adolescent drug use will be inversely related to home stability.
3. Involvement with alcohol, tobacco, and/or cannabis will increase with age/grade.
4. Males will be more involved with alcohol and cannabis than females.
5. Females will use tobacco as much, or more, than males.
6. Native adolescents will use alcohol, tobacco, and/or cannabis more than Non-Native adolescents.
7. There will be no difference in knowledge of drug effects between Native and Non-Native students.
8. Knowledge of the effects of alcohol , tobacco, and cannabis will not inhibit use of the corresponding drug.

The preceding chapter also provided a closer analysis of three studies regarding Native adolescent drug use. This revealed certain methodological limitations which deserve consideration in the planning of this, and future research, of Native adolescents and drug use. For example, language barriers must be considered when developing questionnaires or interviews. As well, cultural differences in the willingness toward self-disclosure may have implications for the method of data collection and for issues specific to confidentiality. Missing data was shown to be a particular problem for one of the studies and steps should be taken to minimize this. Two of the studies used student samples and limitations of school surveys were presented. These limitations are important to remember when drawing conclusions derived from studies of student samples.

CHAPTER III

THEORIES OF DRUG USE

Much of the existing literature regarding the various forms of drug use is descriptive, or epidemiological in nature. However, several theories have been alluded to, in an attempt to explain results, and these come from a variety of disciplines. With regard to "alcoholism", Tarter and Schneider (l976) identify these disciplines as medicine, psychology, and sociology.[10] With regard to adolescent "substance use", theories employed have been identified as belonging to three major categories. These can also be seen as stemming from these disciplines (i.e., genetic-physiological-biochemical; psychological-learning-personality; social-environmental) (Pandina & Schuele, l983, p. 950). From each of these disciplines, or categories, come a large number of related theories (Table 6), none of which have been thoroughly satisfactory in explaining patterns of drug/substance use (Pandina & Schuele, 1983, p. 950). For example, within the field of sociology, the area of deviance has considered several theories with respect to drug use; and many of these have been modified and adapted by different sociologists.

Pandina and Schuele (l983) have observed that regarding substance use, "theories [of drug use] which focus heavily on factors related to only one category have not received clear support from empirical research" (p.950). Therefore, there seems to be an argument for a multidisciplinary approach. There has also been an attempt to develop an overall theory, such as a general theory of deviance which can be applied to drug use (Kaplan, l985). Recognizing all of this makes it difficult, if not impossible, to propose one theory

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[10] Tarter and Schneider argue for a multidisciplinary approach.

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Table 6 elaborated on the models of alcoholism by outlining some of the theories used by these in the attempt to explain alcoholism.

SOURCE: Tarter, Ralph E. and Schneider, Dorothea U. Models and theories of alcoholism. In Ralph E. Tarter and A. Arthur Sugerman (Eds.), Alcoholism: Interdisciplinary approaches to an enduring problem. Reading, Massachusettes: Addison-Wesley Publishing Company, 1976.

which will best apply to the area under study. However, two theories, from within the area of deviance that have been used in an attempt to explain drug use, and which may be particularly relevant to the Native situation will be mentioned.

Generally the Native people of Canada are thought of as being less well off than Canadians as a whole. This is reflected in statistics comparing ethnic groups on levels of education, occupation, and income (Tables 7,8,9) and is also reflected by the state of Native health. Paul Grescoe (l98l) writes that "the wretched physical and mental health of Native Canadians is a national disgrace" (pp.109-10). He supports this statement by citing such things as high infant-mortality rates; higher homicide, suicide, and accidental deaths; higher incidence of certain infectious diseases, such as tuberculosis, alcohol and drug abuse; poor living and sanitary conditions; and an average age of death (42.4 years) being approximately twenty-four years younger than for Canadians in general (Grescoe, l98l). With respect to the future, Hunter (l98l) writes:

> Life in the rural and northern areas of Canada, where Indians and Inuit are concentrated, holds relatively little promise of future opportunities for employment in high-skill, high-paying jobs. The reservation system has had the effect of keeping Indians out of the economy and in a state of poverty and economic dependence upon the government. (pp.l60-6l)

Observations such as these clearly indicate that Native people are disadvantaged in Canadian society. The search for causes of these inequalities, or class differences, has been approached from different perspectives (i.e., functional theories, conflict theories) and there are arguments for and against each. Regardless of the approach taken, the fact of gross inequality remains.

Not only are Native people at a disadvantage economically, politically, and socially, but they have also suffered culturally. In l857, the Canadian government passed an act (Act for the Gradual Civilization of the Indian Tribes)

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Table 7 describes, by ethnic group, the Canadian population aged fifteen and older (not attending school) according to the highest level of schooling achieved in 1971.

SOURCE: Derived from 1971 Census of Canada. Cat. 92-743. As cited by Hunter, A.A. Class tells: On social inequality in Canada. Toronto: Butterworth, 1981.

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Table 8 described, by ethnic group, the occupational distribution of the Canadian male labour force in 1961.

SOURCE: 1961 Census of Canada. Vol.3., 1-15, Table 21. As cited by Hunter, A.A. Class tells: On social inequality in Canada. Toronto: Butterworth, 1981, p. 134.

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Table 9 gave the average income for certain Canadian ethnic groups in 1971.

SOURCE: 1971 Census of Canada. Cat. 99-709. As cited by Hunter, A.A. Class tells: On social inequality in Canada. Toronto: Butterworth, 1981, p. 136.

which reflected the government's belief that "Indians must be assimilated in order to survive" (Frideres, 1983, p.23). Since then numerous acts and ammendments to acts have been passed. Regardless of the Acts and their attempts to "do or undo", the influx of different people to Canada and the passage of time has made a certain amount of acculturation by Native people inevitable.

Changes to a traditional way of life have often been problematic and in terms of the impact on physical health, have been well documented. (i.e., changes in growth patterns, incidence of respiratory illness, changes in cancer rates, nutritional health, etc.).[11] However, there may be other effects. For anyone, Native or Non-Native, adolescence is a time when childhood behavior changes for more mature behavior; and the individual is faced with choices and decisions important to his/her adult life. (Pandina, 1984, p.254) As the adolescent searches for his/her identity, the Native adolescent may have a particularly difficult time owing to the "erosion of traditional avenues for validation of self " (Weibel-Orlando, 1984, p.327).

Anomie Theory

A sociological theory, which Thio (1983) notes has been applied in the area of deviance to illegal drug use, is anomie theory as developed by Robert

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[11] References specific to this list of documented physical effects include: O. Schaefer, "Pre- and post-natal growth acceleration and increased sugar consumption in Canadian Esdimos", Canadian Medical Association Journal, 1970, 103(Nov. 7), 1059-68; S. Evers, J. Orchard, and E. McCracken, "Lower respiratory disease in Indian and Non-Indian infants", Canadian Journal of Public Health, 1985, 76(May/June), 195-98; O. Schaefer, J. A. Hildes, L. M. Medd, and D. G. Cameron, "The changing pattern of neoplastic disease in Canadian Eskimos", Canadian Medical Association Journal, 1975, 112(June 21), 1399-1404; O. Schaefer, J. F.W. Timmermans, R. D. P. Eaton, and A. R. Matthews, "General and nutritional health in two Eskimo populations at different stages of acculturation", Canadian Journal of Public Health, 1980, 71(Nov/Dec), 397-404.

Merton (1968).[12] This theory recognizes a desire or goal among North Americans to be successful, and that this goal should be available to all people, regardless of social class background. However, in reality "legitimate 'means' of achieving the high success goal, such as getting a good job, are not freely available to all classes of people" (Thio, 1983, p.29). When legitimate means are not available, people may strive for success through "illegitimate means". Thus, a state of anomie exists, in that there is an "overemphasis on the success goal" and underemphasis on the use of legitimate means for achieving that goal" (Thio, 1983, p.30). However, Merton admits that not all lower class people will choose illegitimate means, and he describes a number of other types of adaptation to the state of anomie. One of these adaptations is called "retreatism". The retreatist is seen as one who withdraws from society and does not care about success. An example given is that of the drug addict (Thio, 1983, p.31).

The Native adolescent who is the subject of this study is not necessarily an "addict", however, his/her use of drugs may be influenced by the pressure of social inequality, and the difficulties in achieving success. Long et al. (1968) note that the early adolescent years are often accompanied by a lowering of self-esteem. Perhaps the recognition of minority status in a disadvantaged group, serves to lower adolescent self-esteem even more. Consequently the use of drugs may provide a route by which the adolescent can avoid the depressing reality of his/her situation. In support of this, Winfree and Griffiths (1983) suggest that as the young Native moves through adolescence he/she becomes more aware of his/her minority status and the limitations imposed by society. The Native adolescent becomes an "isolated, frustrated, disoriented individual who might turn to drugs as an escape from both a disintegrating and depressing aboriginal world, and an uncaring and disinterested outside world" (Winfree & Griffiths, l983, p.65).

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[12] For further discussion of anomie theory see Alex Thio, Deviant behavior (2nd ed.), Boston: Houghton Mifflin Company, pp. 35-6, 354.

The sample for this study is unique in that it includes Native youth from differing economic backgrounds (both "rich" and "poor" bands). If money is a symbol of success in North American society, the comparison between rich and poor bands may be interesting. The access to money may act in two ways: (l) the simple availability of money (not necessarily worked for) may imply success; or (2) the availability of money may provide access to various means for achieving success. Regardless of the view taken, money may protect the individual in a situation of anomie.

Subculture Theory

A second type of sociological theory, which could be viewed as an alternative explanation for Native adolescent drug use, is subcultural theory.[13] Consideration of an alternative theoretical explanation, from that of anomie theory, follows from recognizing that the adolescent drug user is not necessarily an "isolated" individual. In fact, Native drug use is group behavior shared with others as part of recreational activity (Weibel-Orlando, l983). This hints at the possible existence of a subculture within which drug use behavior is the norm.

Generally subculture theories recognize that "some cultural prescriptions are common to all members of society, but that modifications and variations are discernible within the society" (Nettler, l974, p.l4l). John Hagan (l984) gives Cohen's (l955) "contracultural theory of status deprivation" as an example of subcultural theory (pp. l04-5). Cohen recognizes a dominant set of middle-class values in North American society and a set of differing working-class values. It is proposed that when a working-class child enters school, he/she is compared to middle-class children. In becoming an adolescent this individual may try to win acceptance by trying to assume more of the middle-class ways. Ultimately, he/she fails and returns to more familiar ways. In this way a delinquent contraculture develops. Among "this 'confined community of peers', juvenile deviance is seen as an acceptable response to an unacceptable environment" (Hagan, 1984, p.105).

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[13] For further discussion of subcultural theory see: J. Hagan, The disreputable pleasures: Crime and deviance in Canada (2nd ed.), Canada: McGraw-Hill Ryerson Ltd., 1984, pp. 109-10; G. Nettler, Explaining crime, New York: McGraw-Hill, 1974, pp. 150-53.

Many Native adolescents attend schools which include a variety of other children, many of whom may be classified as middle class. The Native student may feel a certain amount of pressure to be more like "them" (at least at first). If these other students use less drugs than Native students, perhaps the Natives will be encouraged to also use less. The sample which will be investigated by this study includes Native students in "all Native" schools, as well as in "mixed schools". Comparisons between these two groups may be interesting from this perspective.

Neither anomie theory or subcultural theory get at the "roots" of the problem (i.e., the causes of social class differences which lead to situations of anomie or status deprivation). However, they both recognize a given situation and propose explanations from that point forward. Both theories may show some merit in offering explanations for Native adolescent drug use and there is value in considering them in terms of raising hypotheses.

Summary

The preceding chapter has identified that there are a large number of theories from a variety of disciplines which have been applied to the study of drug use. The examination of each of these goes beyond the scope of this paper. However, two sociological theories from the field of deviance will be considered. These are Merton's anomie theory and Cohen's contracultural theory of status deprivation (a subcultural theory). Use of both of these theories follows the recognition of "class" differences between Native and Non-Native Canadians. Generally, the Native people are disadvantaged in education, occupation, income, and in the state of their health.

Anomie theory describes a situation where access to legitimate means for achieving success is not freely available to all classes of people. Rather than chosing illegitimate means, some may chose "retreatism" as an adaptation to this state of anomie. The "retreatist" is seen as withdrawing from society and this is sometimes accomplished by using drugs. Recognizing this state of anomie may be particularly stressful for the adolescent who is also having to cope with the physiological and emotional changes associated with adolescence.

Anomie theory may help explain drug use differences between the Bands in this study. The basis for these differences may revolve around economic differences. For example, if money is a symbol of success, then those from richer Bands may not feel the state of anomie to the same extent as those from poor Bands. Therefore, these adolescents from richer Bands may use drugs less. This gives rise to the following hypothesis:

- Adolescents from richer Bands will use drugs less than adolescents from poorer Bands.

Cohen's "contracultural theory of status deprivation" also recognizes class differences which are accompanied by differing values. Here the "working-class" adolescent enters a "mixed" school system in which he/she is compared to "middle-class" values. In an attempt to become accepted by others in the school he/she may try to adopt more of the "middle-class" ways and drug use behavior may decrease. However, this individual fails and ultimately returns to "old ways" among a group of his/her peers. This results in the formation of a "delinquent contraculture". Differences in school populations may result in different drug use patterns by adolescents in this study. For example, those attending schools with Non-Native students may be influenced to use drugs less. This suggests the following hypothesis:

- Native adolescents who attend "mixed" schools will use drugs less than Native adolescents attending "all-Native" schools.

Interestingly, there may be an alternative hypothesis related to the type of school attended. This would refer back to the theory of anomie. For example, it may be possible that Native students attending mixed schools would compare their situation to that of the Non-Native students and be more aware of their lower class status and the inequalities in opportunities for achieving success. In such a case these adolescents would feel the state of anomie even more than students who attend all-Native schools. Therefore, they would be more likely to opt for retreatism as a method of adaptation to this state of anomie. The alternative hypothesis is:

- Native adolescents who attend "mixed" schools will use drugs more than Native adolescents attending "all-Native" schools.

Conclusion and Statement of Hypotheses

Negative effects as a result of using alcohol, tobacco, and cannabis outnumber positive effects. The tendency to use drugs in combination, with an accentuation of negative effects has also been noted. Although these "negatives" apply to users regardless of ethnic origin, the Native people seem particularly vulnerable. In fact, use of drugs such as alcohol, tobacco, and cannabis may contribute to poor Native health in Canada. Native adolescents are of special concern since early use of drugs such as these is associated with continued use and increased negative effects.

Compared to Non-Native adolescents, the Native adolescent is likely to be more involved with alcohol, tobacco, and cannabis; and to show a greater propensity for multiple drug use. Reasons for this have been proposed by various disciplines who have employed a variety of theories. Two theories which may have particular relevance for the Native adolescent and drug use (recognizing the minority and lower class status of Native Canadians) come from the area of deviance. These are Merton's anomie theory and Cohen's contracultural theory of status deprivation (a subculture theory). Both offer reasonable explanations. However, neither address the roots of the class differences which account for differences in behavior. These theories have given rise to three hypotheses which will be investigated by this study. As well, these theories support some of the other study hypotheses (i.e., in explaining "levels of use" differences between Natives and Non-Natives). Therefore, reference to them will be included with the discussion of the findings where appropriate.

Regardless of ethnic origin, epidemiological studies suggest drug use increases with age/grade during adolescence and males use alcohol and cannabis more than females. Gender comparisons of tobacco use indicate a different trend. It has been found that (at least in more recent years) females smoke as much, or more, than males. The literature has identified other relationships as well. These include the linkage of low self-esteem and poor mental health to drug use. Consistent with this, factors associated with depression, such as unemployment and broken homes, have also been linked to drug use. Knowledge of drug effects has also been investigated. Cannabis, tobacco, and alcohol knowledge were assessed by the Canada Health Survey

(King et al., 1984). However, it was not possible to correlate these results with drug use behavior. In an earlier study, knowledge of tobacco effects was found not to inhibit smoking by adolescents (Evans et al., 1979). This may be particularly relevant when planning strategies for health education. Although not all of the preceding relationships have been documented with respect to the Native people, there is reason to expect that they may apply.

Three hypotheses have been proposed regarding the issue of "levels of use". They are:

1. Native adolescent use of alcohol, tobacco, and/or cannabis will be high.
2. Native adolescents will use alcohol, tobacco, and/or cannabis more than Non-Native adolescents.
3. Those who use any one drug will be more likely to use others.

The next ten hypotheses reflect certain characteristics which may be related to drug abuse. These have followed from findings documented by previous studies and from the discussion of theories of drug use. They are:

4. Involvement with alcohol, tobacco, and/or cannabis will increase with age/grade.
5. Males will be more involved with alcohol and cannabis than females.
6. Females will use tobacco as much, or more, than males.
7. Native acolescent drug use will be inversely related to psychological well-being.
8. Native adolescent drug use will be inversely related to home stability.
9. There will be no difference in knowledge of drug effects between native and Non-Native students.
10. Knowledge of the effects of alcohol, tobacco, and cannabis will not inhibit use of the corresponding drug.

11. Adolescents from richer Bands will use drugs less than adolescentsfrom poorer Bands.

12. Native adolescents who attend "mixed" schools will use drugs less than Native adolescents attending "all-Native" schools.

13. Native adolescents who attend "mixed" schools will use drugs more than Native adolescents attending "all-Native" schools.

CHAPTER IV

METHODOLOGY

This chapter will present a description of the Native adolescent sample and the manner in which it was selected. The questionnaire will also be discussed with comments on reliability, validity, and confidentiality of items with particular relevance to this study. The operationalization of measures will also be included. Measurement of the dependent variable will be described first, followed by measurement of the various independent variables. Finally, the statistical methods used for analysis of the data will be described.

The Sample

In 1985, a health knowledge, attitude and behavior survey was administered to a non-random sample of students from ten different rural Alberta schools.[14] The schools that were chosen were those that were attended by students from the four Hobbema Bands (Ermineskin, Samson, Montana, Louis Bull) and from the Alexis Band. The schools were both Protestant and Catholic and included some Non-Native students (Gartrell, 1986, p.7). Although the questionnaires were given to grade seven and eight students present on a particular day, some grade nine students entered the sample. This occurred because some of the classes combined grades. In order to obtain a larger sample, and to help reduce the problem of absenteeism, the questionnaires were given on two separate occasions. The first time was in the spring, close to the end of the school year; and the second time was in the fall, near the beginning of the school year. The questionnaires were coded to avoid any duplication that would occur if the same student was present on both occasions.

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[14] The data used by this study was commissioned by the Alberta Indian Health Care Commission as part of the 1985 review of the Community Health Demonstration Program (CHDP) and was requested by the four Hobbema Bands and Alexis. The student sample was selected by Dr. John Gartrell, Department of Sociology, University of Alberta, Edmonton.

The sample of students selected for this analysis included the 166 respondents who identified themselves as being Native Indian.[15] Fifty-eight percent of these students were female and forty-one percent were male. Ages ranged from eleven to seventeen, with an average age of 13.8. Almost one-half of the students were in grade seven; thirty-two percent were in grade eight; and, seventeen percent were in grade nine. Appendix A contains more detailed characteristics of the student sample.

Most of the students in the sample indicated membership in one of six specific Indian Bands. Four of these bands (Ermineskin, Louis Bull, Samson, and Montana) centre around Hobbema, Alberta, which is their administrative centre. It is also the administrative centre for Pigeon Lake, a satellite community. The Hobbema Reserve is described as covering approximately 209 square kilometers and is about eighty kilometers south of Edmonton. Most of the residents on the reserve are from the four mentioned Bands, although a certain number of members of other Bands also reside on this Reserve.

There are education facilities on the Reserve which are directed by the Band and encompass children from daycare to junior high. Ermineskin school is the only school included in this student survey which is on a Reserve and has a majority of Native students. Of the students belonging to the four Hobbema Bands, 67.5 percent attend Ermineskin school. The remaining 32.5 percent attend "mixed schools" which include Pigeon Lake, Sacred Heart, St. Joseph, St. Augustine, Ponoka, Queen Elizabeth, and Clear Vista schools.

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[15] Some Non-Native students entered the sample, but their numbers were too small for Native and Non-Native comparisons.

Each of the four Hobbema Bands receive money from oil royalties. Owing to this, these Bands are considered relatively wealthy, especially when compared to Bands (i.e., Alexis) who do not receive these funds. Each Band controls their own funds, and there may be differences in allocation of money (i.e., one Band may spend more than another on programs for youth). Ermineskin, Louis Bull, Montana, and Samson Bands each have their own recreation centres, and programs, and usage rates may differ (Carnew, 1986).

The Alexis Band was the fifth Band surveyed. The Alexis Reserve is located approximately 70 kilometers northwest of Edmonton. It is much smaller than the Hobbema Reserve and covers 38.38 square kilometers. The Alexis Reserve also has residents who are members of other Bands (Alexis Health Care Needs Assessment Study, 1984, pp. I-5). Students from the Alexis Band formed 23.5 percent of the total sample. There are no schools on the Alexis Reserve and children attend school at Darwell or Onoway (Alexis Health Care Needs Assessment Study, 1984, pp. I-5). Both these schools are considered to be "mixed". Of the Alexis students, 79.5 percent attend Onoway school, and the remainder attend Darwell.

Thirteen students (7.8 percent of the sample) who belonged to other Bands responded to the questionnaire. This suggests that these students do not reside on the Reserve of the Band in which they belong. Actual location of residence (i.e., on or off Reserve) was not asked by the questionnaire and is, therefore, impossible to determine.

Obviously this student sample is not a representative sample of Native students in Alberta, nor is it representative of Native adolescents. For example, Carnew (1986) suggests that on the Hobbema reserve alone, there are many adolescents not attending school. Whether or not drug use patterns among these adolescents differs from usage patterns indicated by students cannot be determined by this survey. (Limitations of school surveys have been previously noted in the literature review.) As a result of sample limitations, results, on the basis of this study alone, must not be generalized to the Native adolescent population.

The Questionnaire

The questionnaire was composed of items pertaining to health knowledge, attitudes, and behaviors.[16] The questions covered many health related areas (i.e., nutrition, physical activity, safety, etc.) and were not restricted solely to those dealing with alcohol, tobacco, and cannabis use. There were also some items specific to certain demographic characteristics (i.e., number of people living in the home, employment status of parents, etc.) Most of the health questions were taken directly from the Canada Health Surveys given to grade seven students (King et al., 1984, 1985). Some of these questions were revised to better suit the language skills of the sample. However, similarity between this questionnaire and that used by the Canada Health Survey should help facilitate comparisons.

An advantage that this survey has over the Canada Health Survey is that it combines knowledge questions with the attitude and behavior questions. This will allow investigation of health knowledge and its relationship to health attitudes and behaviors. The Canada Health Survey did not combine these, and two years separated the knowledge survey from the attitude and behavior survey. As a result, the respondents were different in each survey and each survey had to be analyzed separately. Another advantage this survey has over the Canada Health Survey is that includes more demographic information (i.e., marital and employment status of parents) which can be used in analysis.

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[16] The questionnaire was developed and administered by Dr. John Gartrell, Department of Sociology, University of Alberta, Edmonton.

Questionnaire items that will be included for analysis include knowledge and behavior questions regarding alcohol, tobacco, and cannabis. Some of the demographic information will also be used, as well as questions specific to psychological well-being. The actual items used will be discussed in more detail in the next section regarding the operationalization of measures.

Reliability and validity of most of the questionnaire items have been addressed by the Canada Health Surveys (King et al., 1984a, 1984b).[17] They used an advisory group comprised of health education experts to assist in identifying health topics and concepts important for the appropriate age groups surveyed. Following the development of the specific questionnaire items a pilot study was done to determine their "validity, internal consistency, readability, item difficulty, and item discrimination" (King et al., .1984a, pp. 5-6).

Self-reporting, either by interview or written questionnaire, is most often the method of obtaining information regarding drug or "substance" use. There is often concern regarding the accuracy of such reports. For example, even if participants choose to admit using the drug(s) in question, there is concern over how accurate their memories may be (Smart & Jarvis, 1981). Smart and Jarvis (1981) address this issue in an article which reviews the reliability and validity of self-reports of drug use. They report high test-retest reliability on drug self-reports in North America. However, they also note that reliability "is lower for questions about illicit drugs and where the time interval covered by the question is short (e.g. last 30 days as opposed to last year)" (Smart & Jarvis, 1981, p. 90). In terms of validity, Smart and Jarvis (1981) suggest that self-reports of drug use tend to be conservative and that the problem is in under-reporting rather than over-reporting.

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[17] Questionnaire items regarding some of the demographic information, as well as items regarding suicide, were not included in the Canada Health Surveys.

Fear of follow-up may influence under-age adolescents from admitting to alcohol use, or use of illegal drugs. To help allay this concern, confidentiality of the respondents was ensured. Confidentiality was maintained by the use of identification numbers rather than names. This hopefully helped to encourage honest reporting. Questionnaires were also distributed, completed and collected during school hours, thereby helping to ensure a good return rate and minimize missing data.

Operational Measures

The Dependent Variable

Alcohol, tobacco, and cannabis comprise the three components of the dependent variable. However, there are different forms of each of these drugs. In order to be more specific, the actual components of the dependent variable are: (l) alcohol (ethanol), (2) tobacco (cigarettes), and (3) cannabis (marijuana and hashish).[18] The nature of the questionnaire items will allow these to be examined independently, as well as in combination with the formation of indexes.

Alcohol use will be measured in two ways. These will include the frequency of use and the quantity consumed per occasion. The two alcohol measures will also be combined to form an "alcohol index". Tobacco use will be measured according to how many cigarettes are smoked per day; and, cannabis use will be measured acccording to the frequency of use. Table l0 illustrates the specific measurement items. These four measures will also be combined to form a drug use index incluuding alochol, tobacco, and cannabis (ATC). The higher the score on the index the greater the drug involvement.

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[18] For the remainder of this paper, the terms alcohol, tobacco, and cannabis will be synonomous with ethanol, cigarettes, marijuana/hashish respectively.

TABLE 10

Measurement Items for Alcohol, Tobacco, and Cannabis Use*

Alcohol Measures

1. Frequency of Use
   - How often do you use it?
   - possible responses:
     - do not use
     - about once a month
     - 2 - 3 times a month
     - once a week
     - 2 - 3 times a week
     - everyday
2. Quantity of Use
   - How much alcohol do you usually have at one time?
   - possible responses:
     - do not use
     - 1 - 2 drinks
     - 3 - 4 drinks
     - 5 or more drinks

One drink means:
- 1 bottle of beer
- 1, 4oz. glass of wine
- 1 shot liquor (11/2 oz.)

Tobacco Measure

I. Quantity of Use
   - How many cigarettes do you usually smoke a day?
   - possible responses:
     - do not use
     - less than 10
     - 10 - 20
     - 20 or more

Cannabis Measure

I. Frequency of Use
   - How often do you use it?
   - possible responses:
     - do not use
     - about once a month
     - 2 - 3 times a month
     - once a week
     - 2 - 3 times a week
     - everyday

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* Occasionally in analysis a user/non-user measure will be used. Only those reporting "do not use" will be considered non-users, all others will be grouped as "users".

Considering this ATC index is particularly relevant in view of the tendency toward multiple drug use as indicated by the literature review. Appendix B gives details regarding the index formation. Sample frequencies on these variables will be discussed later with the study results.

The Independent Variables

Certain demographic characteristics such as age, grade, ethnicity, and gender will be considered when examining alcohol, tobacco, and cannabis use. A number of other concepts will be included as independent variables. These include: (l) psychological well-being, (2) home stability, (3) financial status, (4) mixed schools, and (5) knowledge. The manifest variables which will be used as measures of these concepts come directly from the questionnaire. The following paragraphs will describe the measurement of each of these concepts in more detail.

Ethnicity, Age, Grade, and Gender

The only students chosen for this data analysis were those that indicated they were Native Indian. None of the Non-Indian students were included. Age, grade, and gender were each asked directly by the questionnaire.

Age was given as the actual age in years, however there was a category for "eleven or less", and a category for "eighteen or more". Since only one student indicated being age seventeen, when age grouping was used, the uppermost category was changed to "sixteen or more". Grouping of ages resulted in 43.4 percent of the sample being in the "eleven (or less) to thirteen" category; 47.0 percent in the "fourteen to fifteen" category; and, 7.8 percent in the "sixteen or more" category.

Grade choices on the questionnaire were given as "seven" or "eight". However, twenty-eight students (16.9 percent of the sample) wrote in that they were in grade nine. Of the remaining students, 48.2 percent were in grade seven, and 32.5 percent were in grade eight. Certain of the statistical procedures used in analysis (i.e., chi-square crosstabulations) required grouping of the age and grade categories to obtain a sufficient number of respondents in each category.

It was expected that "grade" would also reflect the advancing age of the respondent. For this sample, the Pearson correlation coefficient of age and grade does reflect a positive relationship. The coefficient though fairly strong (r=.57, p=.000), is certainly not a perfect relationship. Therefore, it is possible that a younger individual may pass quickly through the grades, while an older individual could be progressing at a slower rate. For this sample the mean grade seven age is 13.1; the mean grade eight age is 14.1; and the mean grade nine age is 14.9. (Table 11) Owing to this, correlations using age and grade may differ and each should be considered separately.

Gender designation was indicated by a mark beside the male or female response category. Those who indicated being male comprised 41.2 percent of the sample, with the remaining 58.4 percent being female (one case was treated as missing).

Psychological Well-Being

"Psychological well-being" will be measured in two different ways. The first measure will be by an index composed of those items which the Canada Health Attitudes and Behaviors Survey (King et al., 1985) identified as reflecting self-esteem and mental health (SEMH). On all but two of the individual self-esteem and mental health items, the greatest proportion of repondents chose the middle, "some of the time", category. Only the items regarding "making friends easily" and "wishing to be someone else" found the largest proportion of respondents choosing the most "positive"

TABLE 11

Ages of Native Students in Grades Seven, Eight, and Nine

	Grade				
	Seven	Eight	Nine	N	%
Eleven or Less	5	0	0	5	(3.1)
Twelve	16	0	0	12	(10.1)
Thirteen	32	17	2	51	(32.1)
Fourteen	21	16	7	44	(27.7)
Fifteen	5	13	12	30	(18.9)
Sixteen	1	5	6	12	(7.5)
Seventeen or More	0	0	1	1	(0.6)
Total	80	51	28	159	(100.0)
Mean Age	13.1	14.1	14.9	13.8	

response. However, in general it was found that respondents tended to be somewhat more positive than negative in their response choices. (Table 12)

The second measure of psychological well-being will also be as an index, and this will be composed of items reflecting suicide ideation and suicide behavior. Responses to these individual items revealed that although close to one-half of the respondents had thought about death, fewer actually had thought of committing suicide, and even fewer had actually attempted suicide. However, in such a young sample, the 36.7 percent who have thought of suicide, and the 14.5 percent who have tried it seems like a fairly large proportion. Unfortunately, there were no Canadian and Alberta figures for comparison. Table l2 shows the specific items used, along with the percent of responses. Appendix B describes the index formation.

A high score on the SEMH index will represent a high level of psychological well-being, and a high score on the suicidal index will represent a low level of psychological well-being. Therefore, as would be expected the correlation between the two indicates an inverse relationship. (r=-.4l, p=.000). Finding that these two measures do not correlate higher suggests that they do not measure the same thing. This could be influenced by the way the questions were asked. For example, the SEMH items were all worded in the present tense, while the suicide items were worded in the past tense. However, it is also important to recognize that a low level of psychological well-being may lead to greater suicide ideation, but that this is not inevitable.

Home Stability

"Home stability" will be measured according to whether or not both parents live in the respondent's household. For example, a home will be considered "stable" if both parents are living in the home, and "unstable" if one,

TABLE I2

Responses to the Items used to Measure Psychological Well-Being

	Percent Response			
	rarely/ never	some of the time	most of the time	N
Method -SEMH				
Self-Esteem Items				
I. I feel good about the way I look	13.9	47.6	38.0	165
2. I feel left out of things	38.6	47.6	13.3	165
3. I make friends easily	7.2	39.8	51.8	164
4. I have trouble making decisions	22.3	62.7	13.9	164
5. I wish I were someone else	46.8	39.8	9.6	163
6. I have confidence in myself	10.2	45.2	43.4	164
Mental Health Items				
1. I cannot sleep worrying about things	28.3	45.8	25.3	165
2. I feel depressed	42.8	45.8	9.0	162
3. I get frustrated	22.9	63.3	12.7	164

	Percent Response		
	Yes	No	N
Method II - Suicide			
Suicide Ideation			
I. Has there ever been a period of two weeks or more when you thought alot about death - - either your own, someone else's or death in general?	48.2	47.6	159
2. Has there ever been a period of two weeks or more when you felt like you wanted to die?	36.1	62.7	164
3. Have you ever felt so low you thought of committing suicide?	36.7	60.2	161
Suicide Behavior			
1. Have you ever attempted suicide?	14.5	83.1	162

or both, are not living in the home. This is assessed according to the respondents' direct answer on the questionnaire.[19]

Knowledge

"Knowledge" refers to knowledge of certain of the effects of alcohol, tobacco, and cannabis. This is measured by having the respondent answer five multiple choice questions. These questions were taken directly from the Canada Health Knowledge Survey (King et al., 1984). Each of the knowledge questions was recoded to simply reflect a correct or incorrect response. Table 13 gives the actual knowledge questions used and the correct responses.

Financial Status

There was no information regarding personal or family income collected. Therefore, "financial Status" will be measured according to difference in Band income. Two different measures will be used. The first measure considers Band membership only. As mentioned earlier, the four Hobbema Bands are considered wealthier than the others included in this survey. Therefore, the Ermineskin, Montana, Samson, and Louis Bull Bands will be labelled "rich" and all the others will be "not rich".

The second measure of financial status recognizes the school attended. There are some students from "other" Bands who attend the same schools as those who belong to the four Hobbema Bands. Although it is not known if these students live on the Hobbema Reserve, it is possible that they may feel some of the effects, or benefits, of being close to a "rich" community. Therefore, the schools attended by Hobbema Band members will be called "rich". The

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[19] A second method of measuring home stability was considered. This second method looked at the employment status of parents, and a stable home would be one in which at least one parent was employed (part-time or full-time). However, this measure was problematic owing to a large amount of missing data regarding fathers' employment. Results considering mothers' employment only will be mentioned.

TABLE 13

Knowledge Items

Knowledge of Alcohol

A. Alcohol:

1. helps to cure colds
2. keeps the body warm in cold weather
3. slows the body's reaction time
4. don't know

correct response - #3

B. First-time alcohol drinkers compared to experienced drinkers are more likely to:

1. become addicted to alcohol
2. become drunk more quickly
3. enjoy the taste of alcohol
4. don't know

correct response - #2

Knowledge of Tobbaco

A. The substance in tobacco smoke that produces dependency on cigarettes is:

1. tars
2. carbon monoxide
3. nicotine
4. don't know

correct response - #3

B. The substance in cigarette smoke thought to be closely related to lung cancer is:

1. carbon monoxide
2. tars
3. nicotine
4. don't know

correct response - #2

Knowledge of cannabis

A. The frequent user of marijuana is likely to be:

1. highly excitable and irritable
2. tired and poorly motivated
3. hungry and unable to sleep
4. don't know

correct response - #2

remaining two schools, Onoway and Darwell, have only Native students from the Alexis Band and one student from the Saddle Lake Band. These two schools will, therefore, be called "not rich".

Mixed Schools

"Mixed schools" will be determined by the school attended. Ermineskin school is the only school in this survey that is on a Reserve. Therefore, this school is considered "all-Native". All the other schools included in this survey are outside Reserve areas and include a wide variety of students from nearby areas. These other schools will be seen as "mixed schools"

Statistical Methods

Responses to questionnaire items have been coded and entered into a computer file. The data was analyzed using SPSSx (Statistical Package for the Social Sciences, second edition). Owing to the non-generalizability of the sample, the size of the correlation and regression coefficients, rather than significance levels, should be of interest.

Early analysis involved running descriptive statistics for each of the questionnaire items. Following this, certain of the items were recoded and four indexes were computed. This manipulation of data has been described in the preceding section.

Chi-square crosstabulations were done next, to check for differences between groups on certain of the items used as independent variables. For example, knowledge items were crosstabulated with age and grade groups. Although the older students use more drugs than younger students, these crosstabs revealed no difference in terms of their drug knowledge.

Following this, a correlation matrix using all the study variables (as well as some of the other questionnaire items for exploratory purposes) was done.

Where indicated, partial correlations were done to allow for control of certain variables. This will be discussed, where appropriate, in the next chapter.

CHAPTER V

LEVELS OF USE

The following chapter will present the findings and discussion specific to the three "levels of use" hypotheses. Much of the presentation will be descriptive in nature. However, explanations of findings may include reference to anomie or subculture theory.

Level of Use Within the Native Sample

Investigation of the hypothesis stating that Native adolescent use of alcohol, tobacco, and cannabis would be high reveals approximately thirty percent of the sample involved with each of these drugs. When looking at the dependent variable measures according to "use" and "do not use" 27.1 percent admit using alcohol according to the "alcohol frequency" item; 30.1 percent admit alcohol use according to the "alcohol quantity" item; 31.9 percent admit cannabis use; and, 33.7 percent admit to smoking cigarettes. Table 14 describes drug use by age. Except for cigarette use by those aged sixteen or older, none of these drugs are considered legal for consumption by this sample. Interestingly, cannabis use which is considered illegal in Canadian society for all ages claims slightly more users than alcohol. Considering that tobacco is probably the most freely available drug, and the one least controlled by society, it is not surprizing that its use ranks the highest. It is interesting to note that even though cigarette use is actively campaigned against (i.e., through the media), it continues to be used by the adolescent population. (The relationship between knowledge and drug use will be discussed in the next chapter.)

Indexes of the dependent variable reveal negatively skewed curves with the largest number of responents at the low use end of the scales. For example,

TABLE 14

Number of Users of Alcohol, Tobacco, and Cannabis by Age Group

	Age Group						Total Users
	11 to 13	%	14 to 15	%	16 to 17	%	Each Drug
Acohol	7	(14.3)	32	(65.3)	10	(20.4)	49
Tobacco	12	(21.8)	34	(61.8)	9	(16.4)	55
Cannabis	18	(35.3)	21	(41.2)	12	(23.5)	51

- numbers and percentages of users only
- eleven missing

109 of 159 respondents fall into the lowest category (non-user) of the Alcohol index; and 75 of 157 respondents fall into the lowest category (non-user) of the ATC index. Obviously some of the respondents must use drugs other than alcohol, and this would account for the difference in numbers occupying these "no use" positions on the indexes. The ATC index suggests an interesting finding. For example, when looking at each of the drugs independently only appproximately thirty percent of respondents admit to use. However, when considering all three drugs at once eighty-two (52 percent) admit to using at least one of the drugs in question. This will be investigated further by the third "levels of use" hypothesis which examines multiple drug use.

To decide if these "user" levels are high requires further investigation. If considering that use of each of these drugs is harmful to health, and that use by individuals of these age groups is generally not condoned by Canadian society, any use may be considered high. However, it is not unusual for an adolescent, Native or Non-Native, to use (or at least try) these drugs. For that reason, a more accurate assessment of the level of use by this sample would follow a comparison of use levels with other adolescents. This will be discussed in the next section.

Level of Use Between Native and Non-Native Samples

Comparison between this survey and the Canada Health Surveys (King et al., 1984, 1985) was necessary in testing the hypothesis which stated that Native adolescents will use alcohol, tobacco, and/or cannabis more than Non-Native adolescents. The comparisons involved the reported findings by these

Canada Health Surveys.[20] Therefore, manipulation of the Canadian Health Survey data to form similar indexes was not done.

Comparisons between Native and Non-Native findings according to the different measures of the dependent variable yielded different results. With respect to alcohol use, it was found that Native adolescents did not drink any more frequently than Non-Native adolescents; but that they did drink larger quantities per occasion. (Tables 15 and 16) The average age of the Native sample was older than the average age of the grade seven adolescents in the National survey. (i.e., 13.8 and approximately 12.0 respectively). Obviously, since age is correlated to alcohol use, this could be a possible reason for the finding that Native adolescents consume greater quantities. However, even when compared to grade ten Canadian adolescents (mean age of approximately 15.0), the Native sample (as a whole) continued to show a greater propensity toward consumption of alcohol in larger quantities.[21]

When looking at tobacco use, it was found that Native adolescents in this study smoke more cigarettes than Non-Native adolescents in the national sample. Again, the slightly older age of the Native sample may account for some of this. However, even when compared to the Alberta and Canadian

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[20] It must be stressed that the Native student sample is not representative of Native adolescents, therefore results must not be generalized. As well, other differences between the surveys (i.e., questionnaire, ages, etc.) makes conclusive comparisons impossible.

[21] When looking at only the grade seven Native students similar results with respect to alcohol use were found. Again, Native students were found not to drink any more frequently than Non-Native students. In fact, at the grade seven level fewer Native students claimed to be drinkers (17.9 percent) than did grade seven Alberta students (23.4 percent) and grade seven Canadian students (25.1 percent). The tendency for drinkers to drink larger quantities per occasion also persisted at the grade seven level. For example, 57.1 percent of grade seven native drinkers consume three or more drinks, compared to 22.0 percent of grade seven Canadian drinkers.

TABLE 15

Comparison of Frequency of Alcohol Consumption Between Native, Alberta, and Canadian Adolescents

How Often:	Canada Grade 7	Alberta Grade 7	Native Whole	Native Grade 7
Do not drink	75.0	76.5	72.3	82.1
once/month	14.5	13.7	13.9	
2-3 mo.to 1/wk.	8.0	7.6	10.8	17.9
2-3/week	2.6	2.1	2.4	
Total	100.1	99.9	99.4	100.0

- results given in percentages
-differences of five percent are considered significant (p=.05) between Canada and Alberta findings
- adapted from source

SOURCE of Alberta and Canadian findings: King, A.J.C., Robertson, A.S., & Warren, W.K. Canada health attitudes & behaviors survey: 9, 12 and 15 year olds 1984-85 - Alberta report. Queen's University, Kingston. Published by the authority of the Minister of National Health and Welfare, Canada, 1985, p.15.

TABLE 16

Comparison of the Amount of Alcohol Consumed per Occasion Between Native, Alberta, and Canadian Adolescent Drinkers

	Canada		Native	
	Grade 7	Grade 10	Whole	Gr. 7
1-2 drinks	78.0	43.0	38.0	42.8
3-4 drinks	22.0	27.0	21.7	21.4
5 or more		30.0	38.0	35.7
Total	100.0	100.0	97.7	99.9

- results given in percentages
- Alberta findings were not given
- adapted from source

SOURCE of Canadian findings: King, A.J.C., Robertson, A.S., & Warren, W.K. Summary report: Canada health attitudes and behaviors survey: 9, 12, and 15 year olds,1984-85. Queen's University , Kingston: Published by the authority of the Minister of National Health and Welfare, Canada, 1985, p. 52.

grade ten samples, a similar trend, though not as strong, was noted.[22] (Table 17)

It was also found that Native adolescents are more involved with cannabis use than Non-Native adolescents. Again, this finding is noted even when comparing the younger Native sample to the older grade ten Alberta and Canadian samples. (Table 18)[23]

Alcohol and ATC indexes were not formed by the Canada Health Surveys. However, in three of the four dependent variable measures (alcohol quantity, tobacco use, cannabis use) the Native sample indicated greater use than the Non-Native samples. Even when consideration was given to the older nature of the Native sample, Native use was still higher. Therefore, it is likely that if an ATC index had been available by the Canada Health Surveys, the Native sample would show higher scores, indicative of greater involvement. Owing to these findings, there is support for the hypothesis that Native adolescents use alcohol, tobacco and cannabis more than Non-Native adolescents.

Comparisons between Native and Non-Native samples revealed that Native adolescents used tobacco and cannabis more than their Non-Native counterparts. They also tended to drink a greater amount of alcohol per occasion, but did not differ from Non-Native adolescents in terms of frequency of use.[24] These findings suggest a different pattern of use between the races

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[22] Considering grade seven Native students separately, the finding of greater tobacco use by the Native group than by grade seven Canadian and Alberta students persisted. (Table 17)

[23] Comparing grade seven Native students to grade seven Canadian and Alberta students revealed a similar trend. Of the Native students 23.4 percent used cannabis, compared to only 3.2 percent of Canadian, and 3.2 percent of Alberta grade seven students

[24] It must be noted that among both the Native and Non-Native students only a minority were involved in use of each drug.

TABLE 17

Comparison of Tobacco Use Between Native, Alberta, and Canadian Adolescents

	Grade 7		Grade 10		Native	
Cigarette Use	Canada	Alberta	Canada	Alberta	Whole	Gr. 7
Do not smoke	89.0	91.3	73.7	76.6	64.5	74.4
< 10 per day	8.7	7.5	15.5	14.5	30.7	25.6
10-20 per day	1.5	1.0	8.4	6.9	2.4	
20 or more	0.8	0.2	2.4	2.1	.6	
Total	100.0	100.0	100.0	100.1	98.2	100.0

- results given in percentages
-differences of five percent are considered significant (p=.05) between Canada and Alberta results
- adapted from source

SOURCE of Alberta and Canadian findings: King, A.J.C., Robertson, A.S., & Warren,W.K. *Canada health attitudes & behaviors survey: 9, 12 and 15 year olds 1984-85 - Alberta report.* Queen's University, Kingston. Published by the authority of the Minister of National Health and Welfare, Canada, 1985, p.15.

TABLE 18

Comparison of Cannabis Use Between Native, Alberta, and Canadian Adolescents

	Grade 7		Grade 10		
Frequency	Canada	Alberta	Canada	Alberta	Native*
Do not use	96.8	96.8	80.3	82.2	66.3
Once per month	1.3	1.1	7.1	7.2	13.9
2-3 per month/ 1 per week	1.0	1.0	7.1	6.6	9.0
2-3 times per week	0.9	1.1	5.5	4.0	9.0

- results given in percentages
- differences of five percent considered significant (p=.05) between Canada and Alberta results
*23.4 percent of Grade 7 Native students admit to using cannabis once/month or more
- adapted from source

SOURCE of Alberta and Canadian findings: King, A.J.C., Robertson, A., Warren, W.K., Fuller, K.R., & Stroud, T.W.F. Canada health knowledge survey: 9, 12 and 15 year olds 1982-1983 Alberta findings. Queen's University, Kingston: Published by the authority of the Minister of National Health and Welfare, Canada, 1984, p.16.

and there are many possible reasons for this. Explanations may stem from each of the disciplines noted earlier as contributing to drug use literature (i.e., medicine, psychology, and sociology).[25] Anomie theory would expect Native drug use to be high owing to lack of legitimate means for achieving success (according to middle-class standards) which results in retreatism accomplished by using drugs. The contracultural theory described by Cohen, also would expect higher use of drugs by Natives. This results following the adolescent's inability to achieve acceptance by his/her middle-class counterparts. Therefore he/she continues to use drugs which is an acceptable behavior among his Native peers.

Multiple Drug Use

The hypothesis stating that those who use any one drug will be more likely to use others is supported by the finding that the items forming the dependent variable correlate moderately high with each other. As would be expected, the two alcohol items correlate very high with each other, therefore, the combined alcohol index was used as the measure of alcohol use in investigating this hypothesis. The correlation coefficient of the alcohol index with tobacco use was r=.45 (p=.000) and with cannabis use was r=.54 (p=.000). The correlation coefficient between tobacco use and cannabis use was r=.41 (p=.000).

A closer look at the 157 Native survey respondents, who answered each of the individual drug use items, reveals that seventy-five of them claim to not use any of the drugs in question. Of the eighty-two who admit to being users, thirty-five (42.7 percent) use only one drug. Broken down further results reveal that of forty-eight alcohol users, six use alcohol only; of fifty-one cannabis users, twelve use cannabis only; and of fifty-two tobacco users, seventeen use tobacco only. Of the forty-seven respondents who use more than one drug, forty-eight percent use all three drugs, with the remaining fifty-two percent using two of the three drugs. (Table 19) It was also found that the heavier users of any drug were the most likely to use others. For example, of thirty users of three or more drinks per occasion, twenty-seven of them use other drugs; of the four people who use ten or more cigarettes per day, all of them use other drugs; and of fifteen users of cannabis two to three times a week or more, fourteen of them use other drugs. (Table 20)

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[25] While theories stemming from each of these disciplines may have merit; discussion of all of these goes beyond the scope of this paper.

Finding that users of one drug are likely to use another is not surprizing in view of recent literature. Although Cockerham (l977) found that this tendency was greater in Native adolescents than in Non-Native adolescents, such a comparison was not available for this analysis. The finding that seventeen people use only cannabis is interesting after noting Kandels' (1982) observation that drug use rarely starts with an illegal drug. The actual time sequence of drug involvement cannot be determined by this study. However, it is possible that these cannabis users did start using legal drugs such as alcohol and tobacco first before moving on to cannabis. If this is so, given the young age of this Native sample, onset of drug use may have begun at an earlier age than included by this survey.

The tendency to use multiple drugs could also be explained by either anomie theory or subculture theory. For the same reasons an individual may be motivated to use one drug (i.e., withdrawal from society; or to be part of a "contraculture") an individual may be motivated to use more than one. Perhaps the use of more than one drug is even more effective at achieving the goal of withdrawal or acceptance by ones' subculture.

TABLE 19

Number of Native Adolescents Using None, One, Two, or Three Drugs

Drugs Used	None	One Drug	Two Drugs	Three Drugs	N
None	75				
Alcohol Only		6			
Tobacco Only		17			
Cànnabis Only		12			
Alcohol & Tobacco			8		
Alcohol& Cannabis			12		
Tobacco & Cannabis			5		
All Three Drugs				22	
Total Number	75	35	25	22*	157

*nine missing

TABLE 20

Number of Heavier Users Using One, Two, or Three Drugs

Drug Used	One Drug	Two Drugs	Three Drugs	N
	Those Using Three or More Drinks per Occasion			
Alcohol Only	3			
Alcohol & Tobacco		4		
Alcohol & Cannabis		7		
All Three Drugs			16	
Total Number	3	11	16	30
	Those Smoking Ten or More Cigarettes per Day			
Cigarettes Only	0			
Cigarettes & Alcohol		1		
Cigarettes & Cannabis		1		
All Three Drugs			2	
Total Number	0	2	2	4
	Those Using Cannabis Two to Three Times per Week or More			
Cannabis Only	1			
Cannabis & Alcohol		2		
Cannabis & Tobacco		1		
All Three Drugs			11	
Total Number	1	3	11	15

Summary

Although the number of users of each drug are in the minority, there is some support for Native drug use being high. This is most apparent when comparing this Native survey to the Canadian and Alberta surveys. When these are compared, Natives indicate higher levels of use for the quantity of alcohol consumed per occasion, the number of cigarettes smoked per day, and the frequency of cannabis use. However, in terms of "frequency" of alcohol use Native students did not differ from Non-Native students. These findings remained the same when the Native sample was considered as a whole, as well as when only grade seven Native students were compared to Non-Native grade seven students.

When looking at all possible types of drug use at once, over half of the Native students admitted to using at least one of the drugs in question. This finding was not compared to Canadian and Alberta results. Therefore, it is not known if this is a pattern that is also characteristic of Non-Native drug use. However, the tendency to use drugs in combination was supported by the findings in the Native survey. Of the users of each drug, over half also admitted to using another drug as well. This tendency toward multiple drug use was most noticeable when looking at the heavier users of any one drug. Sequence of drug involvement was not apparent by this survey. However, the tendency to begin drug involvement with use of legal drugs such as alcohol and tobacco has been noted in the literature review. This possibility raises concern for those younger students who use cannabis, who may have begun "legal" drug use even earlier than the age and grade levels included by this survey.

Reasons for the high levels of drug use among Native students are largely speculative. Anomie and contraculture theory offer possible explanations, but further investigation is necessary to determine if one explanation fits better than the other. These will be discussed further in the next chapter along with other alternative explanations for drug use patterns.

CHAPTER VI

SAMPLE CHARACTERISTICS AND DRUG USE

In this chapter results will be presented according to each of the independent variables and the corresponding hypothesis. Discussion will include possible reasons for the findings with reference back to the literature. As well, where appropriate, the findings will be viewed according to anomie and/or subculture theory as possible, more global explanations.

Age and Grade

The findings support the hypothesis which stated alcohol, tobacco, and/or cannabis use increases by age/grade. Degree of involvement with either of these three drugs appeared to increase by age as is shown in Table 21. Zero-order correlations between age and each of the components of the dependent variable were all significant and moderately strong (r=.3l to .49). The zero-order correlations between grade and the dependent variable were not as strong (r=.l0 to .26). In fact, the correlation between tobacco and grade (r=.l0) was not significant. The difference in the relationships between age and grade as independent variables further suggests that these do not measure exactly the same things. As described earlier, age can vary between grades with certain younger individuals passing more quickly, while some older individuals may be slower in their progress. Table 22 gives the correlation coefficients for the zero-order relationships using age and grade as independent variables.

The finding that alcohol, tobacco, and cannabis use increases with advancing age and grade is not surprizing, as this is consistent with the literature. Of the two independent variables, age yields the strongest correlation

TABLE 21

Percentage of users of Alcohol, Tobacco, and Cannabis by Age Group

Age Group	Alcohol quantity	Tobacco frequency	Cannabis frequency
Eleven to Thirteen	10.0 (70)	17.1 (70)	11.6 (69)
Fourteen and Fifteen	42.6 (75)	44.2 (77)	47.4 (78)
Sixteen or More*	83.3 (12)	69.2 (13)	61.5 (13)

- numbers in brackets represent the total number of respondents in each age category who responded to the drug use items (includes users and non-users)
- percentages were calculated according to the number in each category who admit to drug use
* only one respondent was seventeen, and none were older

TABLE 22

Zero-Order Correlations of Age and Grade with Alcohol, Tobacco, and Cannabis Use

	Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco frequency	Cannabis frequency	ATC Index
Age	.39	.46	.46	.34	.31	.49
Significance level--	.000	.000	.000	.000	.000	.000
Grade	.23	.26	.26	.10	.17	.26
Significance level--	.002	.000	.001	.113	.014	.001

- coefficients rounded to nearest one hundredth
- one tailed test

coefficients. This suggests that the effect of grade is minimized owing to possible overlap in the ages between the grades. Therefore, in this study, age is the better indicator of drug involvement.

There are several possible reasons for the correlation between age and drug use. Some of the simpler explanations link drug use with adolescence. (i.e., the access to drugs becomes easier with the onset of adolescence). Pandina et al. (1984) note that although young people may have already been exposed to tobacco, the largest increase in exposure to alcohol and marijuana occurs between the ages of twelve and fifteen. With respect to alcohol, Zucker (1983) suggests that adolescence is a time for experimentation. Owing to this, he recognizes that some "drunkeness" will be part of the learning process; and that a minority will progress beyond "experimentation" (Zucker 1983). Easier access, coupled with the desire or tendency to "experiment" may explain the age and drug use relationship, but this explanation ignores broader social conditions which may also play a part.

An explanation for the correlation between grade and drug use has been offered by Winfree and Griffiths (1983). They suggest that as grade increases, the demands of school increase. This is seen as an unpleasant situation by the Native adolescent, who then turns to drugs as an escape (Winfree & Griffiths, 1983). However, what is meant by "demands" is not clarified; and it seems reasonable to assume that for all adolescents, the demands of school will increase with grade. If this is so, there must be something which makes these demands particularly hard for the Native student who tends to be more involved in drugs than Non-Native students. (i.e., a difference in values between a "white" curriculum and a "native" lifestyle).

Winfree and Griffiths (1983) offer a second possible explanation which comes closer to recognizing broader social conditions. This second explanation could be seen as stemming from anomie theory which suggests there are inequalities between the "classes" which serve to impede the lower class acquisition of "success" by legitimate means. This "lower-class" status often applies to the Native population who form a minority in Canadian society. Therefore, the Native adolescent (who already must cope with the pressures of being an adolescent) comes to feel frustrated and isolated as he/she recognizes his/her minority status and the accompanying "limitations and restrictions imposed by society" (Winfree & Griffiths, 1983, p. 65). This individual, according to Winfree and Griffiths (1983) will then turn to drugs in an attempt to escape, or to "retreat", as described by anomie theory.

Clearly, any of the preceding explanations for the age/grade and drug use correlation could be thought of as applying to the situation of the Native adolescent in this study. However, on the basis of this study alone it is not possible to determine which explanation, or combination of explanations is best.

Gender

There were two hypotheses which suggested relationships between gender and the dependent variable. The first of these, stated that males will be more involved with alcohol and cannabis than females. This hypothesis is not supported by the findings. Examination of alcohol and cannabis use by gender (the dependent variable was recoded to "user" or "non-user") using chi-square revealed no difference in use between males and females. However, with respect to alcohol use, the zero-order correlation coefficients (though weak and not significant) were in the expected direction. For example, using a dummy variable for gender (males=0, females=1) negative relationships were found with the frequency of alcohol use (r=-.10), the quantity of alcohol consumed (r=-.07), and with the alcohol index (r=-.10). Cannabis use and gender revealed a positive relationship (r=.02), which was too weak to be of any importance. (Table 23).

The second hypothesis which stated that females will smoke as much or more tobacco than males was supported by the findings. This was noted by finding no difference between males and females in their cigarette smoking habits according to chi-square crosstabulation. The zero-order correlations suggested a slight tendency toward more smoking by females. This was reflected by a positive correlation coefficient of r=.06, however, this is weak and not significant. (Table 23)

There were no large gender differences found with usage of alcohol, tobacco, or cannabis. It was expected that, at least with alcohol and cannabis, males would use more. Such a finding would have been consistent with the literature reviewed. With respect to recent tobacco use literature, it has been found that males do not use cigarettes more than females. The data analyzed in this study was consistent with this.

Gender differences may be expected owing to personality differences between males and females (i.e., males are more aggressive) (Anastasi, 1966). As well, male involvement in crime and delinquency (with the exception of sex delinquency) is noted to be more common than female delinquency (Anastasi, 1966; Gibbons, 1976). Part of this could be the result of a difference in "crime opportunity" between the sexes (Anastasi, 1966; Gibbons, 1976). However, some of the difference may be attributable to a difference in sex-role socialization which begins at birth (Gibbons, 1976). Differences in personality, and/or crime involvement may predispose the adolescent male to greater involvement in drug use, than their female counterparts.

The finding of no difference between the genders in the Native adolescent sample could be the result of "equal opportunity", or a socialization

TABLE 23

Zero-Order Correlations of Gender* with Alcohol, Tobacco, and Cannabis Use

	Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco cigarettes	Cannabis frequency	ATC Index
Coefficient	-.10	-.07	-.10	.06	.02	-.04
Significance level--	.114	.189	.109	.231	.389	.325

- coefficients rounded to nearest one hundredth
* coded as a dummy variable (males=0, females=1)
-one tailed test

process among the Native people that does not result in the personality differences previously stated. Another reason for this finding could be the result of an historical event. For example, the "women's movement of the 1970's" may have served to reduce inequalities between the sexes within various institutions (Gibbons, 1976).[26] This could have led to a reduction in differences in drug use by either recognizing female drug use more readily, or by increasing female propenisty toward drug use. Whatever the reason, the previous male tendency to smoke more cigarettes than females is reversing. A similar trend has been noted by Kandel (1982) with respect to marijuana use. She reports that the gender difference in marijuana use is diminishing, but males still predominate, especially in heavy involvement (p. 336). This study supports the absence of gender differences in drug use behavior.

Psychological Well-Being

The hypothesis stating that adolescent drug use will be inversely related to psychological well-being was investigated using both measures of the independent variable. According to correlation coefficients for the zero-order relationships both measures behaved in the expected direction. (Table 24) However, there were differences in the strength of the relationships. This was not surprizing since the self-esteem/mental health (SEMH) index and the suicidal index corelated only moderately strongly with each other (r=-.41). As previoulsy mentioned, this suggests that they do not measure exactly the same thing.

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[26] While the impact of the "women's movement" may have been felt by, and influenced Canadian women in general, the impact on Native women is not fully known. It ~~is~~ likely that they have been affected by this, but to state that this is the reason behind their tendency to use drugs as much or more than males may be overly presumptuous. It would be interesting to compare user rates of Native females before and after the impact of this movement.

TABLE 24

Zero-Order Correlations of Psychological Well-Being Measures with Alcohol, Tobacco, and Cannabis Use

	Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco cigarettes	Cannabis frequency	ATC Index
SEMH	-.06	-.15	-.11	-.28	-.11	-.17
Significance level	.225	.033	.082	.000	.086	.018
SUICIDAL	.15	.27	.24	.34	.27	.33
Significance level	.032	.000	.002	.000	.000	.000

- rounded to nearest one hundredth
- one tailed test

The SEMH index correlated significantly with all but two of the dependent variable measures. (Table 24) These were the frequency of alcohol use and the alcohol index. Although, not a strong correlation, the SEMH index did correlate significantly with the quantity of alcohol consumed (r=-.15). This may suggest a heavier drinking style related to lower psychological well-being. The largest coefficient with the SEMH index was with tobacco use (r=-.28). This suggests that those reporting a low level of psychological well-being smoke more cigarettes than those reporting a higher level of psychological well-being. Overall, the SEMH index correlated in the expected direction with the ATC index, but the coefficient was not particularly strong (r=-.17, p=.018). Interestingly, gender was also found to correlate with the SEMH index. The coefficient (r=-.29) reflected females reporting lower SEMH than males. However, there was no difference in drug use between males and females.

The suicidal index correlated significantly with all of the dependent variable measures. All the relationships were positive, and ranged from r=.15 to r=.34. The lowest of these was with alcohol frequency, and the highest was with tobacco use (these lower and higher coefficients showed the same pattern with the SEMH index). The positive nature of these relationships suggested that the greater the tendency toward suicide, the greater the tendency to use drugs. In this respect, the hypothesis is supported by the findings. Table 24 illustrates the difference in the coefficients as determined by the SEMH and suicidal indexes.

The suicidal index was also found to correlate with age (r=.22, p=.003). (The SEMH index did not correlate with age in the same manner. The cooefficent was only r=-.06 which was not significant.) As previously noted, age also correlated with alcohol, tobacco, and cannabis use. This raised the possibility of the relationship between the suicidal index and "drug" use being the result of the age influence. Owing to this, first-order partial correlations were done between the psychological well-being measures and alcohol, tobacco, and cannabis use while controlling for age. (Table 25) Results generally revealed slightly weaker correlation coefficients, except with cigarette use. In this case, using both the SEMH index and the suicidal index, the coefficient increased in strength when age was controlled. However, the increase with the suicidal index was very small, r=.3364 to r=.3408. As expected the greatest impact of controlling for age was felt in the correlations which used the suicidal index. The largest decrease was with the measure of alcohol frequency. In this case the coefficient decreased from r=.15 to r=.07, and was no longer a signficant relationship. However, overall, the hypothesis was supported best when using the suicidal index, even when age was controlled. (Table 25)

The relationships between the two measures of psychological well-being (SEMH index and suicidal index) and the dependent variable measures were all in the expected direction. However, the magnitude of the coefficients was variable. This finding suggests that use of drugs is related to lower levels of psychological well-being. This is consistent with findings noted in the literature review.

Of the two psychological well-being measures, the suicidal index correlated most strongly with the dependent variable. This is interesting considering an observation, noted by Wiebel-Orlando (1984), that alcohol use has been linked to a large number of young Indian suicides. As previously mentioned in the literature review, Kandel (1984) suggests that alcohol use may be a short term solution to low self-esteem and depressive mood, and that suicide is the long-term and more drastic solution. It would be interesting to know if tobacco and cannabis have also been linked to Native youth suicide. Considering that multiple drug use is common, this may be a realistic possibility. Recognizing this, it raises concern for those Native youth who report high

TABLE 25

Partial Correlations of Psychological Well-Being Measures with Alcohol, Tobacco, and Cannabis Use When Controlling for Age

	Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco cigarettes	Cannabis frequency	ATC Index
SEMH	-.04	-.15	-.11	-.32	-.11	-.12
Significance level	.329	.037	.091	.000	.102	.013
SUICIDAL	.07	.22	.17	.34	.24	.28
Significance level	.207	.005	.022	.000	.002	.000

- coefficients rounded to nearest one hundredth suicidal tendency and who have begun using drugs, as a possible "short-term" solution.[27]

That the SEMH index and the suicidal index differ, when correlated with the dependent variable, suggests they may not be measuring exactly the same thing. Differences in tense in the sentence structure of the items may have influenced reporting by the respondents. For example, it may be easier to admit to something which occurred in the past, rather than to what is occuring in the present (i.e., suicide items were asked in past tense; and SEMH items were asked in present tense). Another possibility could be the nature of the items themselves. For example, the SEMH items are more vague while the suicide items seem more definite. This is noted in terms of response choices. For example, responses to the SEMH items required a choice of "rarely or never", "some of the time", and "most of the time", while responses to the suicide items required a choice of "yes" or "no". Of course, Native willingness toward self-disclosure may vary with the type of question as well.

Although this study did not set out to investigate linkages of psychological well-being with other of the variables a few relationships noted are of interest. This is particularly interesting if considering that there may be certain conditions which decrease or increase psychological well-being, which in turn, affects drug use. For example, as previously noted, unemployment and marital separation have been linked to "depressive mood" in the adult population (Kandel l982). It may be possible that factors such as these affect adolescents as well. The data supported this by revealing that having both parents at home was associated with a slight reduction in suicidal tendency. This Pearson correlation coefficient was $r=-.13$ ($p=.055$). Having an employed mother was also associated with a lower suicide score as noted by a coefficient of r=-.21 (p=.01). This is interesting, not only because it suggests that unemployment and marital separation has an impact on the adolescent, but because it has an impact on the Native adolescent in particular.

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[27] Unfortunately, the time sequence of events is not known. Therefore, it is impossible with absolute certainty to determine if low levels of psychological well-being preceded or followed the onset of drug use.

Anomie and subculture theories also suggest an explanation for the link between lower psychological well-being and drug use. In fact, each imply a possible lowering of some facet of psychological well-being. For example, in anomie theory the lower class individual recognizes inequalities and may choose to withdraw from society; and the individual under subculture theory fails in gaining acceptance by assuming middle-class ways, so returns to old behaviors. Both these theories have attempted to explain drug use behavior in a more global manner, and possible reasons for lower psychological well-being among drug users can be found within each theoretical perspective.

Home Stability

The hypothesis which stated that drug use will be inversely related to home stability was not well suppported by the data with the measures used. Home stability was measured according to whether or not both parents lived in the respondents household. Although the zero-order correlations between "both parents living in the respondents household" and the various dependent variable measures were in the direction predicted by the hypothesis, they were generally weak relationships. Only the relationship with cannabis use was significant (r=-.18, p=.01).

It is interesting to note that among those in this sample, less than half of the students indicated having both parents living in their households (Table 26) Owing to this, the effects of "each parent" was examined with respect to the dependent variable. This also revealed negative relationships. The correlation coefficients between the mother living at home and cannabis use, and with

TABLE 26

Percentage of Parents Living in the Respondents' Household

Only Mother at Home	Only Father at Home	Both Parents at Home
72.9	44.6	41.0

TABLE 27

Zero-Order Correlations of Mothers, Fathers, and Both Parents at Home with Alcohol, Tobacco, and Cannabis Use

	Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco cigarettes	Cannabis frequency	ATC Index
Mother at home	-.12	-.11	-.12	-.04	-.16	-.15
Significance level--	.062	.082	.059	.329	.021	.034
Father at home	-.07	-.01	-.02	-.05	-.17	-.09
Significance level--	.180	.442	.389	.279	.016	.138
Both at home	-.09	-.04	-.05	-.05	-.18	-.11
Significance level	.126	.302	.262	.278	.010	.080

- coefficients rounded to nearest one hundredth
- one tailed test

position on the ATC index were significant. The father living at home showed a similar relationship with respect to cannabis use. (Table 27)

Zero-order correlations failed to reveal significant relationships between the measures of psychological well-being and whether or not both parents lived at home. The coefficient between the suicide index and "both parents at home" was the strongest of the two at r=-.13 (p=.055). Weak relationships were also noted when considering the place of residence for each individual parent.

Employment status of parents was also considered a possible measure of home stability, but as noted previously, the missing data on fathers was too extensive. However, in reviewing the correlation matrix, mother's employment status was found to correlate significantly with frequency of alcohol use, and positions on the alcohol and ATC indexes. Other correlations with dependent variable measures are all stronger than those noted when considering if the mother lived at home (except for cannabis use). As well, all of these coefficients show a negative sign suggesting that there is somewhat less drug use if the mother is employed. (Table 28) The stronger coefficients using "mothers' employment" than when using "place of residence of parents" suggests that mothers' employment status may be a slightly better predictor of drug use by adolescents in this sample.

Correlation coefficients between home stability and the dependent variable measures, though generally weak, suggested that both parents living at home reduced drug use somewhat. The largest coefficient was noted with cannabis use. This probably served to influence the significant relationship found with the ATC index as well. Reasons for this effect are largely speculative. If having both parents at home means the home is secure, stable, and happy, the results may indicate a lower stress level within the home which may reduce the need for drug use. However, this measure of home stability is

TABLE 28

Zero-Order Correlations of Mother's Employment Status with Alcohol, Tobacco, and Cannabis Use

	Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco cigarettes	Cannabis frequency	ATC Index
Mother's Employment	-.23	-.14	.-20	-.11	-.13	-.20
Significance Level	.004	.056	.013	.112	.069	.014

-coefficients rounded to nearest one hundredth
-employment coded as a dummy variable (unemployed=0, employed=1)
-one tailed test

not strongly correlated with psychological well-being measures. This is not surprizing, since having both parents in the home does not, in itself, guarantee a stable, happy homelife. For example, parents who argue and fight, and who are unsatisfied with their own relationship could not be seen as providing a stable home. Perhaps the slightly protective element, noted by having both parents in the home, and drug use (particularly the "illegal" drug, cannabis) simply reflects closer supervision of children.

The finding that an employed mother (part-time or full-time) is associated with reduced frequency of alcohol use, and with lower levels on the alcohol and the ATC indexes is interesting. This measure is also significantly associated with the suicidal index (r=-.2l, p=.0l). If mother's employment serves to increase the financial security of the family, then perhaps this may add to home stability and reduce stress within the family, thereby, increasing psychological well-being and reducing drug use. However, reduction in drug use could be explained in other ways. For example, it may be that children of working mothers must take more responsibility within the home. This sense of responsibility and the likelihood of these responsibilities occupying otherwise "idle" time may decrease the tendency, and possibly the opportunity to use drugs. Another explanation reflects parental behavior. For example, a working mother may be less likely to use drugs herself, as reflected by her ability to maintain employment. Her low level of drug involvement may be protective as there have been relationships found between parental drug use behavior and adolescent drug use (Kandel, l973, l982).

Knowledge

The hypothesis which stated that there will be no difference in knowledge of drug effects between Native and Non-Native students is not fully supported by the data. Investigating this required comparison with the Canada Health

Knowledge Survey (King et al., 1984). These comparisons indicated differences on certain knowledge items. Compared to the Canadian national sample, Native students did better on two of the items. The largest difference (in favor of the Native sample) was on the item regarding "tobacco dependency", where 15.6 percent more of the Native students answered correctly. On the item regarding "first time drinkers" the Native sample out- performed the national sample by 12.0 percent. Compared to the Alberta sample, the findings were slightly different. The Native sample out-performed the Alberta sample on the "tobacco dependency" item by 11.4 percent ; and out-performed on the "first time drinker" item by only 5.8 percent . On all the other knowledge items, the Native sample did slightly worse than the Alberta sample, but only on the item regarding "marijuana users" was this difference greater than five percent (5.9 percent). (Table 29)

The second knowledge hypothesis which stated that knowledge of the effects of alcohol, tobacco, and cannabis will not inhibit use of the corresponding drug, is supported by the findings. A negative correlation coefficient would suggest a certain degree of this inhibiting effect, however, none of the coefficients were "negative". Of these coefficients, two of them were large enough to be significant. These were the "first time drinker" item with alcohol use (as measured by frequency, quantity, and the index);[28] and the "marijuana user" items with the frequency of marijuana use. These suggested that users were more likely than non-users to have correct knowledge of the effects of drug in question.

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[28] This within sample correlation between knowledge of "first time drinkers" and actual alcohol use also suggests the possibility of experiential knowledge. If this is so, the valididty of the "first time drinker" item as an independent variable measure is questionable. It may be more appropriate to see knowledge of this item as an "outcome" of alcohol use.

TABLE 29

Percentage of Correct Responses to Knowledge Items by Alberta, Canadian, and Native Students

Knowledge Item	Canada	Alberta	Native
Alcohol slows the body's reaction time	72.9	77.1	72.3
First time drinkers become drunk more quickly	51.3	57.5	63.3
Tars in tobacco smoke are thought to cause lung cancer	27.0	30.1	25.9
Nicotine is the substance in tobacco that causes dependency	52.5	56.7	68.1
Frequent marijuana users are likely to be tired and poorly motivated	24.9	27.6	21.7

- differences of five percent are considered significant (p=.05) between the Canada and Alberta findings
- adapted from source

SOURCE of Alberta and Canadian findings: King, A.J.C., Robertson, A., Warren, W.K., Fuller, K.R., & Stroud, T.W.F. *Canada health knowledge survey: 9, 12 and 15 year olds 1982-83 Alberta findings*. Queen's University, Kingston: Published by the authority of the Minister of National Health and Welfare, Canada, 1984, (pp. A-8, A-10, A-13).

Both of these significant knowledge items also correlated with age, and since age also correlated with alcohol and marijuana use, partial correlations controlling for age were done. The resulting coefficients between "first time drinkers" and alcohol use (as measured by quantity and the index) were reduced in size but remained significant. The coefficient between the "marijunana user" item and frequency of marijuana use was unchanged. Table 30 shows the correlation coefficients of each knowledge item with use, before and after the control.

Despite common school curriculums there are some differences in drug knowledge between Native and Non-Native Alberta students. Of course it cannot be assumed that the only place adolescents receive information is wihin the school system. For example, media (i.e., television, magazines) carries information and has participated in such things as anti-smoking campaigns. However, this method of information sharing is available to all Albertans and would not likely result in differences that were noted. Native groups may choose to implement programs directed at drug use, and a program of this nature may promote knowledge differences. Unfortunately, information regarding the pressence and/or extent of youth or drug programs was not known for this analysis.

Another possibility for differences in knowledge was previously mentioned. This followed the observation that Native adolescents drink greater quantities of alcohol, and know that first time drinkers become drunk more quickly. In fact, these two items correlated with each other (r=.26). This correlation persisted, although it was weakened when controlling for age (r=.l9) The possibility of experimental, or observational learning may affect this result. Native adolescents also scored better on the item recognizing nicotine as the substance in tobacco responsible for dependency, and although Native youth

TABLE 30

Correlation Coefficents Between Knowledge of a Drug's Effects and Use of the Same Drug, Before and After Controlling for Age

	Alcohol frequency	Alcohol quantity	Alcohol Index	Cannabis frequency
"FIRST TIME DRINKERS"				
Zero-order	.16	.26	.23	
Partial (age controlled)	.08	.19	.15	
"MARIJUANA USERS"				
Zero-order				.16
Partial (age controlled)				.16

- coefficents rounded to nearest one hundredth p<.032

smoked more, this finding could not be attributed to experience. (i.e., cannot observe nicotine creating dependence). Therefore, differences in experience cannot be responsible for all the noted differences.

It has been documented that knowledge of the dangers of smoking does not necessarily inhibit smoking behavior, especially in the adolescent age group (Evans et al., 1979). Findings in this study support this, and results regarding alcohol knowledge and alcohol use are similar. For example, Native adolescents knew the same or more on knowledge items regarding alcohol and tobacco than Alberta adolescents, and they also reported higher usage rates of both of these drugs. (Cannabis use was also higher in the Native sample, however, there were fewer correct responses on this knowledge item by the Native students than Alberta students).

Clearly the knowledge of negative, or damaging effects, is not a sufficient deterrent for drug use. Programs based on knowledge giving in an attempt to change behaviors may not be overly effective. Obviously, there must be other factors influencing drug use which are more meaningful, or important to the adolescent than "knowledge". Although some possibilities have been explored by this data analysis (i.e., psychological well-being, home stability, financial status, etc.) there may be others that were not included. For example, parental use of drugs may influence the adolescent. Evans et al. (1979) suggest that with respect to smoking, social pressure may outweigh the effects of knowledge. Peer pressure, although not considered in this analysis, has been investigated by others and may be an influential source of social pressure promoting drug use.

Financial Status

The hypothesis suggesting that Native adolescents from richer Bands will use drugs less than adolescents from poorer Bands was not supported by the findings. This was noted regardless of which of the two measures was used.

The first measure of financial status included only the Alexis and Saddle Lake Band members as being poor. All the other adolescents, who were considered "richer", showed greater involvement with cannabis, and consumed more alcohol per occasion. This resulted in a higher overall score on the ATC index.[29] These "richer" adolescents were also found to have lower scores on the SEMH index of psychological well-being. Correlations with the frequency of alcohol use and with tobacco use were weak, but were also in a direction opposite to that proposed by the hypothesis (Table 31).

The second measure of financial status grouped the sample differently. This measure considered only those from the Hobbema Bands as rich, and all others were poor. Results were also in the opposite direction from what was predicted. Again, being financially "better off" was related to increased involvement in cannabis use. It was also related to having a lower level of psychological well-being according to the SEMH index. (Table 31)

It was expected that "richer" Bands would have more access to facilities (i.e., recreational centres) and youth programs than "poorer" Bands. Therefore, it was expected that members of "richer" Bands would have less involvement with drugs. The possibility of such a finding was supported by a comment in Weibel-Orlando's (1984) article, where she notes less drug use among the young people of tribes who had more alternate activitities to offer. The finding that students from richer Bands use drugs less would have also been expected

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[29] This measure of financial status was related positively to age. Owing to this, correlations with the dependent variable may be somewhat inflated.

TABLE 31

Comparison of Pearson Correlation Coefficients Between Two Measures of Financial Status and Alcohol, Tobacco, and Cannabis Use, and Psychological Well-Being

Method Used	SEMH Index	Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco cigarettes	Cannabis frequency	ATC Index
First	-.15*	.03	.14*	.10	.06	.21*	.15*
Second	-.18*	.03	.11	.08	.04	.17*	.12

- coefficients rounded to nearest one hundredth
- one tailed test

*p<.05

First method includes Alexis and Saddle Lake Bands as poor; and Ermineskin, Samson, Louis Bull, Montana, and "other" Bands as rich.

Second method includes Alexis, Saddle Lake, and "other" Bands as poor; and Ermineskin, Samson, Louis Bull, and Montana Bands as rich.

by anomie theory. For example, if money is a symbol of "success", then these Band members may not feel the same gap between their lower class (minority) status and "success" as would those from poorer Bands. As a result, the richer Band member would be less compelled to "retreat" and use drugs. However, this expected result was not noted, and the data showed greater drug involvement by richer Band members.

There were several problems with analyzing the data specific to the financial status hypothesis. One problem was that it was difficult in this sample, if not impossible, to disentangle the "rich/not rich" element from the "Native/Non-Native" element. For example, the Hobbema Band members were considered "rich" and also, many of them attended Ermineskin school (all-Native). Another problem was that it was not possible to know how each Band allocated the money it receives. Differences in allocating funds may affect Band members, and it is possible that not all of those belonging to the richer Bands appreciate all the benefits. Other possible reasons for the higher usage rates among those in richer Bands could include the fact that they are slightly closer to the city; that they may be able to afford transportation more often off the reserve (easier access); and that they may have more available money with which to purchase drugs. Finally, it should also be noted that financial resources, recreational centres, and youth programs do not necessarily mean that youth will have more meaningful alternative activities. It would be interesting to know more about the existing programs and atttendance.

Mixed schools

The subculture hypothesis which suggested that Native adolescents who attend "mixed" schools will use drugs less than Native adolescents attending "all-Native" schools was only weakly supported by this data. All the zero-order correlations between the measure for racial mixing, and the dependent variable measures were in the expected direction as predicted by the hypothesis. Owing to this, it appeared that those attending the mixed schools tended to use drugs less than those attending the all-Native school. Therefore, the alternative hypothesis (derived from consideration of anomie theory), which stated Native adolescents attending "mixed" schools would use drugs more than Native adoescents attending "all-Native" schools was not supported by the data.

Closer examination of these zero-order correlation coefficients revealed that only the relationship of "mixed schools" with cannabis use, and position on the ATC index was significant. (Table 32) However, a correlation coefficient of r=.26 was noted between the "mixed" school measure and age. This suggested that those attending the all-Native school were a slightly older group than the other students in the sample. Therefore, age may have influenced these results. Indeed this appeared to be partially true. When controlling for age the coefficient between "mixed" schools and cannabis use was reduced from r=27 (p=.00) to r=.I9 (p=.0I); and with the ATC index from r=.I7 (p=.02) to r=.05 (p=.28). (Table 33)

Another interesting finding concerned the relationship between the psychological well-being measure and type of school attended. Correlation coefficients between these reveal significant relationships (on both the SEMH and suicidal indexes) which suggested that those attending an all-Native school have a lower level of psychological well-being. When controlling for age the relationship with the suicidal index disappeared, but the relationship with the SEMH index was not affected. (Table 34)

Subcultural theory would predict that Native adolescents (especially younger adolescents) may use drugs less if they attend "mixed race" schools, than if they attend "all-Native" schools. This suggests that a greater involvement in drugs may be the norm among Native people and among Native adolescents

TABLE 32

Zero-Order Correlations Between Mixed Schools and Alcohol, Tobacco, and Cannabis Use

	Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco cigarettes	Cannabis frequency	ATC Index
Racial mixing	.06	.11	.10	.05	.27*	.17**

- "racial mixing" coded as a dummy variable (mixed race school=0, all Native school=1)
- coefficients rounded to nearest one hundredth
- one tailed test

* p=.000, **p=.018

TABLE 33

Partial Correlations Between Mixed Schools and Alcohol, Tobacco, and Cannabis Use While Controlling for Age

Alcohol frequency	Alcohol quantity	Alcohol Index	Tobacco cigarettes	Cannabis frequency	ATC Index
-.09	.02	-.03	-.05	.19*	.05

- coefficients rounded to nearest one hundredth
*p=.012

TABLE 34

Correlations Between Psychological Well-Being and Mixed Schools Before and After Controlling for Age

	Psychological Well-Being	
	SEMH Index	SUICIDAL Index
Before control	-.20	.18
Significance level	.006	.014
After control	-.23	.04
Significance level	.004	.327

-coefficients rounded to nearest one hundredth
-one tailed test

more specifically. Then, when these adolescents attend schools that include students from other backgrounds, the Native adolescent is faced with a different set of values, and observes different behaviors. In this case, the Non-Native adolescent is seen as having lesser involvement with drugs. In order to try to gain acceptance the Native adolescent may attempt to change, and behave more like the others. This may serve to motivate him/her toward decreasing drug involvement. Ultimately, subcultural theory sees this individual as failing in the attempt to gain acceptance, and therefore, he/she returns to earlier behavior. This explanation may help explain the finding of different drug use patterns between schools. Further to this, it would be interesting to compare Native and Non-Native students within the same schools, and it would be even more ideal to have access to longitudinal data in which drug use patterns could be observed over time.

Summary

Results of this study show a strong correlation between drug use and age, with drug invovement increasing as age increases. A similar finding was found with drug use and grade, although the correlation coefficients were not as strong. The finding of no gender difference between alcohol and cannabis use was unexpected, but this finding with tobacco use was supported by the literature.

A relationship between low levels of psychological well-being and a tendency toward greater drug use was expected and found (although correlation coefficients were weak). However, of the two measures of psychological well-being, the Suicidal index correlated the strongest with the measures of drug use. Some of the reason for this may be the result of a different response style illicited by the questions comprising each index. The suicidal index also correlated positively with age. Therefore, the relationship between the Suicidal index and the dependent variable was explored while controlling for age. Following the control, relationships were weakened, but they persisted.

Less than half of the respondents in this survey had both parents living at home. Correlation coefficents with this measure suggested slghtly lower drug use when both parents lived a home. Generally these coefficeints were weak and only with cannabis use was the relationship strong enough to be significant. Mother's employment status as a measure of home stability revealed a stronger protective element (when mother is employed) in decreasing drug involvement than did having both parents at home.

There was little difference in knowledge between Natives and Non-Natives. However, the Native sample did score higher on the items regarding "first time drinkers" and "tobacco dependency". This is interesting since they also were found to drink alcohol in greater quantities, and smoke more cigarettes than Non-Natives. Correlation coefficients between knowledge items and drug use within the Native sample revealed that knowledge did not inhibit drug use. Experiential learning was suggested as a reason for the significant correlation between alcohol use and knowledge of "first time drinkers".

Regardless of which measure of financial status was used, adolescents from "richer" Bands were not found to use drugs less than those from "poor" Bands. This did not support the outcome predicted by anomie theory. There were problems with this measure of financial status and a measure of personal, or family, financial status may have been better. Measurement of this variable was further complicated by the inability to disentangle the Band financial status measure from the measure regarding the type of school attended.

The finding that attendance in mixed schools slightly reduced drug use supported contraculture theory as an explanation for Native adolescent drug use. This subculture theory implies that the Non-Native students in the "mixed" schools would use drugs less than the Native students, and that it is *This* behavior which influences the Native students to use fewer drugs. Therefore, a better test of this theory would be to compare actual levels of drug use between Native and Non-Native students in the *same* schools. Also, as previously noted, the difficulty in separating financial status from the school attended may have affected these results. Owing to this, a simple alternative explanation may be that these students have less money, and therefore, cannot afford to buy drugs.

Overall, the strongest relationship between any of the independent variables and alcohol, tobacco and/or cannabis use was with "age". This showed that involvement with these drugs increases quite consistently with age, and this was a finding supported by the literature. The next strongest relationship occurred when using the Suicidal index as a measure of psychological well-being. Even when controlling for age, these relationships persisted, although they were somewhat weaker. Multiple regression, also supported the finding that age and the Suicide index were the best predictors of drug use with the other independent variables explaining little, if any, of the variance in the dependent variable. The multiple regression equation found age to explain twenty-seven percent of the variance, and with the suicidal index, thirty-four percent of the variance was explained.

Explanations for the effect, or lack of effect, of the specific independent variables and drug use varies. Some have focused on the individual (i.e., the process of adolescence) while others look at various elements within society (i.e., the school system). As well, anomie and subculture theories have been considered with respect to certain of the independent variables as more global explanations. Each of these refer to conditions experienced by Native people which could motivate the Native adolescent toward increased drug use. In many cases explanations offered by these theories seem quite plausible. However, testing of the three hypotheses developed specifically in response to these theories was problematic owing to difficulty in measurement. The realization that there are so many possible expanations may lend support to Tarter and Schneider's (1976) observation that a multidisciplinary approach may be best.

CHAPTER VII

CONCLUSION

This study was initiated in hopes of discovering more information about Native adoescent drug use. A group of Alberta Native students were chosen as the subjects of this study. The sample was not a representative sample of Native adolescents so results can not be generalized. However, results are interesting, especially in view of the lack of Canadian data specific to this subject area.

Two general research questions which were concerned with the level of drug use by Native adolescents were asked at the beginning of this study. Generally, results indicated support for higher levels of drug use by Native adolescents. However, this varied depending on the measure of the dependent variable used. For example, Native students tended to drink larger quantities of alcohol per occasion, but did not drink alcohol any more frequently than Non-Native students. Interestingly, the Native students in this sample seemed to prefer to use cannabis over alcohol. When compared to Non-Native students, Native use of both cannabis and tobacco was higher. There was also support for the tendency of Native students to use multiple drugs, although there were no Non-Native comparisons available regarding this.

These Native/Non-Native comparisons were made between two different studies. The Non-Native findings were supplied by research done by King et al. (1984,1985) which surveyed a nationwide random sample of Canadian adolescents. These comparisons were interesting but it would have also been interesting to compare Natives to Non-Natives within the same schools. This would have helped capture some of the more regional effects. For example, greater alcohol use has been found among rural samples than urban samples (Weibel-Orlando, 1984). Therefore, the rural nature of this sample may have resulted in overestimating the level of Native drug use compared to Non-Native drug use.

Interestingly, this Native survey, being a "school survey" could also underestimate drug use by adolescents in the area. This follows from recognizing that school surveys are apt to miss students most likely involved in drug use. The questionniare for this survey was administered on two separate occasions and this should help to minimize this problem. However, there are likely Native adolescents, within the age groups surveyed, who have left the school system and who may be at greatest risk for drug use.

The third general research question asked at the beginning of this study was concerned with characteristics which may influence drug use behavior. With respect to the various independent variables that were investigated as possibly contributing to the use (or non-use) of drugs, the strongest support was found for age and position on the Suicide index. As expected, the older the respondent the greater the tendency to use drugs; and the lower the level of psychological well-being, as indicated by a higher position on the Suicide index, the greater the tendency to use drugs. Although a low level of psychological well-being has been implicated in the use of drugs, reasons for "low psychological well-being" among this sample have not been fully explored.

Other of the independent variables such as home stability, the type of school, and financial status revealed weak correlations with drug use. For example, having both parents living at home; having an employed mother; attending mixed schools; and belonging to poorer Bands were all related to slightly lower levels of drug use. However, there were weaknesses in the measures used. For example, it was difficult to separate the measures of "financial status" and the "type of school attended". There was also a question as to whether the measures used accurately measured the concept intended. This is especially apparent when realizing that having both parents living in the same household does not necessarily mean a "stable" home; nor does belonging to a "rich" Band necessarily mean higher financial status for its members.

Knowledge of drug effects was not related to lower drug use. In fact, this study found that knowledge of the effects of alcohol on first time drinkers was related to higher use of alcohol. However, results such as this should be viewed somewhat cautiously, since the knowledge of this alcohol effect may be the result of experience with drinking. This is interesting as it raises a question regarding the source of adolescent knowledge.

The possibility that knowledge affects behavior differently according to the age of the individual, as noted by Evans et al. (1979), is interesting. Therefore, the finding of no effect of knowledge on adolescent behavior in this sample does not necessarily mean that knowledge will not affect the behavior of Native pre-adolescents. However, recognizing that knowledge may not affect adolescent behavior is particularly interesting considering that most drug prevention programs focus on education. Clearly, results such as these may have policy implications for the development of prevention programs.

This analysis has relied heavily on correlations. It must be stressed that "correlation" is not synonymous with "causation". For example, the finding of a correlation between attending an "all Native" school and using drugs, does not mean that attending Native schools causes drug use. One obvious reason, within this study, which necessitates the avoidance of causal terms is that there is no observable time sequence of the variables. For example, it is not possible in a cross-sectional study to determine which came first, the drug use or the broken home. The time sequence of variables has been identified by Susser (l973) as one of the criteria for judging causal relationships. A second criteria notes the necessity for "consistency of associations on replication" (Susser, l973, p.l42). Replication is important since it is unlikely that results from one study could be generalizable. Also, as previously noted, the nature of the sample used in this study is not representative of the Native adolescent population, and results should not be generalized to this population. Mausner and Bahn (l974) state that:

> Because most studies are conducted with limited populations, results from a single study are usually not accepted unless the findings are confirmed in other, somewhat different study groups. (p. 114)

Anomie theory and contraculture theory were used selectively in attempting to make sense of some of the findings. In some instances one seemed more appropriate than the other, and in other instances each seemed to have application. Obviously this study cannot be seen as a sufficient test of either of them, but considering these, did help to view results in a broader perspective. With respect to certain theories used within the health sciences (and which may also be applicable in this situation) Susser explains:

> . . . different theories can often work equally well as guides to action. Assumptions lie behind all scientific theories; the governing assumptions of a faulty theory may be sufficiently general to permit a broad range of effective action within its terms.
> . . . One theory is better than another only when it is faced with more specific tests and passes them. Specific tests require narrower assumptions, which the less effective theory cannot meet. (p.l3)

Despite the limitations of this study, it does provide an interesting description of Native adolescent drug use. It suggests that there may be different styles of drug use between Native and Non-Native adolescents. Therefore, differences in target populations should be considered when making plans specific to health education and drug prevention programs.

Suggestions for Further Research

This study has revealed many interesting findings which could easily provide a branching out point for further research regarding drug use and Native Canadians. Future research could include a more representative sample of Native adolescents accross a province, or the country. Following the recognition of possible problems with over or underestimating the level of Native adolescent drug use, different samples could be compared. For example, Native students could be compared to Native "non-students"; and Native urban/rural comparisons could be done. Natives and Non-Natives within the same schools could also be compared. This would provide similar regional influences on both samples, and would help determine if Native drug use is higher than Non-Native drug use. Generally, Canadian research regarding the issue of drug use by Native and Non-Native adolescents should be encouraged. This is especially important considering the lack of Canadian data specific to this area.

An attempt could be made to improve upon measures of the independent variables used in this study, especially with respect to the measures of home stability and of financial status. In both of these cases there was some question as to how well they measured the concept in question. There could also be an attempt to develop a better measure(s) of psychological well-being. As well, the investigation of possible "causes" of low psychological well-being may suggest a more complex causal model related to adolescent drug use. A field study utilizing a qualitative, rather than a quantitative approach, may reveal interesting findings regarding some of these independent variables. For example studying family units may reveal conditions or family caharacteristics which inhibit or encourage drug use.

The fact that most of the independent variables used by this study correlated only weakly, if at all, with Native drug use suggests that the inclusion of other independent variables may be of interest when looking at drug use in a Canadian Native sample. For example, parental use of drugs, peer drug use, and risk-taking tendencies are noted be the literature to be related to adolescent drug use. The investigation of these with respect to Native adolescents, in particular, may suggest influences important to the drug use behavior of this group. It may also prove interesting to examine differences in drug knowledge with respect to where, or how, adolescents receive their information. This could have important implications for health care educators.

More research on multiple drug use is also needed, with respect to Canadian Natives, and Canadian adolescents in general. Ultimately, a longitudinal study would be desirable to enable a closer look at drug use patterns over time. For example, this would enable the sequence of drug involvement to be examined. This would also allow differences in Native adolescent drug between schools to be investigated. For example, the drug behavior of a young Native student attending an all-Native school may change as he/she progresses to a "mixed" school with advancing education.

Studies with quite a different focus from this one may provide further insight into the health situation of Native people in Canada. For example, this study has included a measure of suicidal tendency and it may be of interest to investigate this further among Native adolescents. Regardless of the route chosen, further Canadian research regarding the health of Native adolescents is needed.

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APPENDIX A: Sample Characteristics

I AGE

Age	Number	Percent
11	5	3.0
12	16	9.6
13	51	30.7
14	45	27.1
15	33	19.9
16	12	7.2
17	1	.6
Total	163	98.2

3 cases - no response MEAN AGE: 13.8

II GRADE

Grade	Number	Percent
Seven	80	48.2
Eight	54	32.5
Nine	28	16.9
Total	162	97.6

4 cases - no response

III Gender

Gender	Number	Percent
Male	68	41.0
Female	97	58.4
Total	165	99.4

1 case - no response

III BAND MEMBERSHIP

Band	Number	Percent
Ermineskin	31	18.7
Louis Bull	18	10.8
Samson	55	33.1
Montana	10	6.0
Alexis	39	23.5
Saddle Lake	1	.6
Other	12	7.2
Total	166	100.0

V SCHOOL ATTENDED

School	Number	Percent
Onoway	31	18.7
Pigeon	3	1.8
Sacred Heart	2	1.2
Clear Vista	3	1.8
Ermineskin	86	51.8
St. Joseph	5	3.0
Queen Elizabeth	19	11.4
St. Augustine	5	3.0
Ponoka	3	1.8
Darwell	9	5.4
Total	166	100.0

APPENDIX B: Index Formation

1. Alcohol Index

- in order to compute the alcohol index, responses to the two items had to be added together

- to obtain a common metric for both items, the six responses to the"frequency of use" item were multiplied by two; and the four responses to the "quantity" item were multiplied by three

- after summing these two products, five was subtracted from the total to give a zero score at the low end of the index, and a score of nineteen at the high end (a zero-base index)

- equation: ((6x2) + (4x3)) - 5

0 19
low use high use

2. ATC Index

- in order to equally weight the items and to obtain acommon metric for computing the ATC index, the six responses to the alcohol and cannabis frequency items were multiplied by two and thensummed; and the four responses to the alcohol and tobacco quantity items were multiplied by three and summed

- the resulting two scores were then added together

- ten was subtracted from the total to give a zero score at the low end of the index, and a score of thirty-eight at the high end (a zero-base index)

- equation: ((6+6)2 + (4+4)3) -10

0 38
low use high use

3. SEMH Index

- in computing the SEMH Index, the nine items reflecting self-esteem and mental health were added together

- from this total, was subtracted nine. This gave a low score of zero, and a high score of 19 (a zero-base index).

0..19

low SEMH "negative" psychological well-being	high SEMH "positive" psychological well-being

4. Suicidal Index

- in computing the suicidal index the four items pertaining to suicide ideation and behavior were added together

- from this total score, four was subtracted. This gave a low score of zero, and a high score of twelve (a zero-base index).

0..12

low suicide risk "positive" psychological well-being	high suicide "negative" psychological well-being